

CONSTRUCTION

METHODS AND EQUIPMENT

January 1950



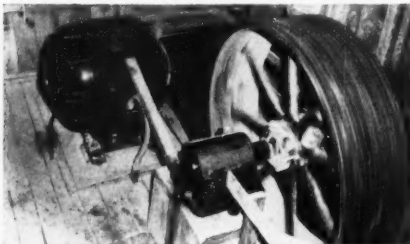
Aggregate Production at Hungry Horse Dam • Saw Dozers Clear Reservoir
Tall Concrete Buildings for Television Relays • World's Biggest Precast Pipe

A MCGRAW-HILL PUBLICATION

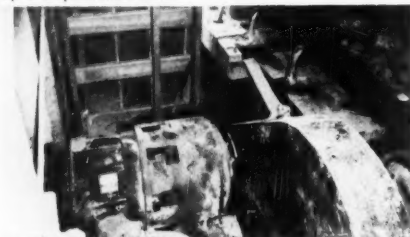
**turning granite
into sand...**

...Electrically

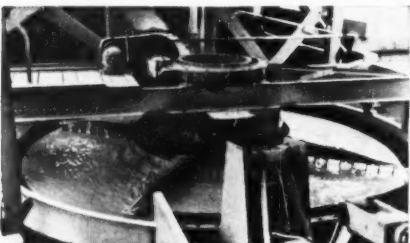
Rock coming from secondary crusher is carried on conveyor driven by a 50-hp G-E gear-motor



Crushed rock is reduced to sand in Marcy rod mill made by The Mine & Smelter Supply Co., Denver, Colo. Drive is a 350-hp G-E synchronous motor



50-hp G-E motor powers conveyor belt hauling material to hopper at top of cement mill



Dorr classifier, for washing sand clean and removing dirt and fines, is powered by a 3-hp G-E gear-motor



Aggregate Plant at Clark Hill Depends on G-E Driven Equipment To Maintain High-Speed Production

It takes rugged, dependable equipment—with rugged, dependable drive—to turn out 450 tons of aggregate per hour, 24 hours a day, as the high-speed plant at Clark Hill is doing. That's why Allstates Constructors, Inc.—a team of six contractors led by Walsh Construction Co.—is relying on *electric drive* to keep the crushers, rod mill, conveyors, and sand classifiers on-the-job, all the time.

Contractors and machinery manufacturers alike are finding that the greater dependability of electric drive means *greater profits*. And when they use G-E drive, expert engineering assistance in application, installation, and service is always available to them—wherever the job may be.

Ask him Today!

Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.

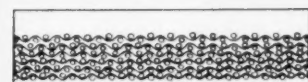
GENERAL



ELECTRIC

Electrified Construction
**BETTER PRODUCT
LOWER COST**

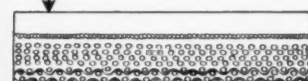
Research keeps
B.F. Goodrich
FIRST IN RUBBER



← **IMPACT CUSHION**

ORDINARY BELT

COVER



← **IMPACT CUSHION**

B. F. GOODRICH CORD BELT

B. F. Goodrich cord conveyor belt

*Gives 2 to 6 times greater impact resistance,
troughs better, lasts longer*

IN the cord plies of a B. F. Goodrich belt each cord is completely surrounded by rubber—no cross threads tie them together. These parallel cords are completely insulated from one another by rubber, free to "give" lengthwise and crosswise when an impact occurs. Thus the rubber can distort temporarily to distribute and absorb shocks that would damage a stiff, unyielding carcass. This augmented impact cushion means better belt service, longer belt life.

Cord belts trough better—Cord belts carry the load with less belt damage, less material "spill." Even

thick, narrow cord belts trough naturally. And because they trough better, cord belts keep centered on the idlers, sustain less damage, require less maintenance. Longer centers, higher lifts can be used. Creasing action between idlers (as in a fabric-type belt) is eliminated.

Cord belts last longer, reduce costs—The better impact cushion of cord construction resists cuts and gouges. A transverse cord "breaker" floated above and across the main cord section helps cushion impact, keeps the cover from stretching beyond elastic limits, and provides better adhesion between cover

and carcass. With each cord completely sealed in rubber, this BFG belt resists the effects of acid materials, moisture, mildew.

Cord belts for tough jobs—If your belts must take severe impact on loading or "over the idlers," cutting and gouging at the loading chute, exposure to moisture and acid materials, heavy loads with long centers and high lifts, you need BFG cord belts. Your local distributor will show you how they can save you money. *The B. F. Goodrich Company, Industrial Products Division, Akron, Ohio.*

B.F. Goodrich
RUBBER FOR INDUSTRY



STRIKE THIS "TELLING BLOW": Hit *Marfak* hard! The fact that it doesn't splatter like ordinary grease tells you that heavy loads and rough roads won't hammer it out of spring shackles, tie rods and other chassis parts . . . proves that *Marfak* gives safer, longer-lasting protection with fewer applications.

LIGHTEN YOUR MAINTENANCE COST LOAD

Save **3** ways on chassis
upkeep
by using

TEXACO MARFAK

**"More than 300
million pounds sold!"**

PROTECT chassis bearings with *Texaco Marfak* and (1) *save parts replacements* — *Marfak* won't squeeze or jar out of bearings . . . gives full protection against wear and rust . . . lengthens life of parts; (2) *save lay-up time* — *Marfak* protection assures fewer repairs and overhauls . . . keeps vehicles on the job; (3) *save lubrication expense* — *Marfak* gives protection for extra hundreds of miles . . . fewer applications are needed.

For similar savings in wheel bearing maintenance, use *Texaco Marfak Heavy Duty*. It seals out dirt and moisture . . . seals in its protective lubricating film. Safer braking is

assured. No seasonal change is required.

Lubricate engines — heavy-duty gasoline and Diesel — with *Texaco Ursa Oil X***. It cleans as it lubricates, keeps fuel consumption and upkeep costs low. Lubricate crawler track mechanisms with *Texaco Track Roll Lubricant* — it seals out dirt and moisture, assures longer life for parts.

Let a *Texaco* Lubrication Engineer help you simplify and improve your maintenance lubrication procedures. Just call the nearest of the more than 2,000 *Texaco* Wholesale Distributing Plants in the 48 States, or write The *Texaco* Company, 135 East 42nd St., New York 17, N. Y.

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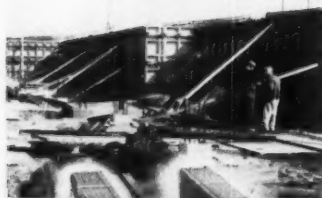


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FOR ALL CONTRACTOR'S EQUIPMENT



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An easy method of form construction . . . cuts labor costs 50%. Only three essential pieces of hardware needed—bolt, wedge, form tie. Tie remains in the concrete while bolt and wedge may be used again and again. Bolt holds the form together and also holds the ties both ways. No nails or spreaders are needed. To strip forms take out wedges, remove bolts, then pull forms up or out without tools. Ties break back inside wall 1" from the surface by twisting loop 1/2 turn. Symons Forms are available made up ready for use or you may purchase the hardware for building your own forms.

Symons Forms, Safety Shores and Column Clamps can be rented with purchase option. Paid rentals apply on purchase price. Additional information will be sent upon request—use the coupon below.



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FORMS
SHORES

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☐ Samples ☐ Layout and estimate (our plans under separate cover)

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Name

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Volume 32
Number 1

CONSTRUCTION

METHODS AND EQUIPMENT

ESTABLISHED
1919

JANUARY 1950

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Sub-Zero Concreting!



ECONOMICAL 'INCOR' WINTER SCHEDULES SPEED CONSTRUCTION

OF 'NYTAL'S' WELL-DESIGNED TALC MILL AND MINE SHAFT



Dependable 'Incor' high early strength cut heat-protection costs, maintained economical schedules, in concreting 'Nytal' talc plant—buildings, silos, mine shaft. Neat-line excavation of shaft is 8'4" x 14'5", inside concrete lines 6'4" x 12'5", providing a 12" lining—depth, 600 ft.



OUTSTANDING alike for quality construction and quality production, the new plant of GOUVERNEUR TALC COMPANY, INC., at Balmat, N. Y., is a dependable source of talc supply for paint, paper, rubber, ceramic and other industries—rated capacity 60,000 tons a year.

Buildings and silos are well designed and staunchly built, and the 600-ft. mine shaft of strong, durable concrete gives access to well-engineered sub-surface operations. Much of the construction work was done last winter, and 'INCOR'* 24-HOUR CEMENT helped maintain economical schedules.

The mine shaft's 12-inch lining was concreted on a weekly cycle: Drilling, blasting, excavating and setting forms Monday through Saturday morning . . . concreting Saturday afternoon, average pour 24 ft. . . stripping Sunday P.M. Water and aggregates heated . . . concrete averaged 60-70 degrees when placed . . . work went ahead steadily, with outside air temperatures as low as 38° below zero.

Quality concrete throughout, even under adverse conditions.

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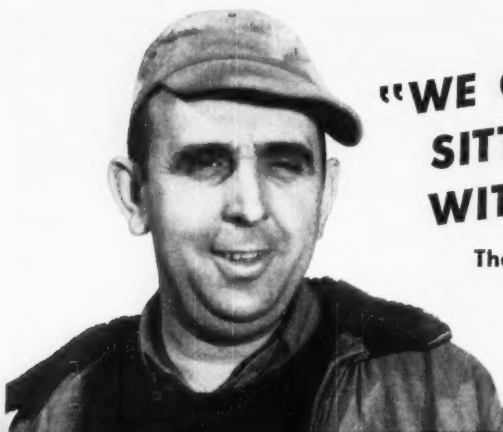


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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,500,000 BARRELS ANNUAL CAPACITY



"WE GOT MIGHTY TIRED SITTING UP NIGHTS WITH SICK BELTING

Then we tried the Thermoid treatment!
Now we're sitting pretty!"



"Here at the Quarry we operate 9 hours a day, 6 days a week. Our conveyor belting on flight No. 1—where the belting really takes a beating from big, jagged, saw-toothed rocks—was giving us plenty of trouble.



"Because of our long work-week, the men began grumbling about having to put in so much extra time late at night repairing rips and tears in this beat-up belting.



"So we called up our belting distributor and he brought a Thermoid engineer around. 'What you need,' said the engineer, 'is Thermoid "H.T." belting with a special soft rubber ply that will cushion those rocks like a cradle.'



"That was several months ago. Now, after watching that Thermoid 'H.T.' belting take the most savage pounding imaginable, we know it is a quality product that can be depended on to stand up under plenty of slam-bang punishment.



"If you have a belting problem, Mister, why not get in touch with your Thermoid distributor. Whether your problem is run-of-mill or highly specialized, he'll help you solve it—efficiently and economically."

A Complete Line of Quality Rubber Products For All Industrial Needs

In addition to Conveyor Belting, Thermoid makes Transmission Belting, F.H.P. and Multiple V-Belts, Elevator Belting, and a complete line of Wrapped and Molded Hose, Industrial Brake Linings and Friction Materials.

It will pay you to
Specify Thermoid!

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**STANDARD EQUIPMENT
for OFF-THE-HIGHWAY
HAULING JOBS!**



Leading contractors and industrial users of heavy earth moving equipment have standardized on Euclids because they know from experience that "Eucs" increase profits and cut hauling costs. "Euclids sure do the job . . . actually cost less to own than any other hauling equipment," owners say.



Large capacity, dependable performance, and lower operating and maintenance costs have made Euclid the choice for off-the-highway hauling jobs. Designed for a wide range of work, there are models for handling all types of material efficiently . . . earth, coal, ore, rock, and other heavy excavation.

Rear-Dump Euclids range in capacity from 10 to 34 tons and are available with standard or quarry bodies . . . semi-rigid or spring mounted drive axles . . . diesel engines from 125 to 300 h.p. Bottom-Dump models have capacities of 13 to 50 cu. yds., 20 to 40 tons, with diesel engines to 275 h.p.

The parts and service facilities of Euclid's world-wide distributor organization assure prompt, efficient service to all Euclid owners. Write today for complete information on the Euclid line or call your distributor for an estimate on your present or future jobs.

THE EUCLID ROAD MACHINERY CO., CLEVELAND 17, OHIO

CABLE ADDRESS: YUKLID

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EUCLIDS



Move the Earth





First in the field in every way, the International TD-24 is the only crawler that gives you these features:

- *Eight Speeds*, forward and reverse—an ideal speed for every phase of operation.

- *Synchromesh Transmission*, for easy on-the-go shifting, cuts waste shifting time almost completely out of your cycle.

- *Planet Power Drive* gives you power on both tracks in a turn for magic maneuverability *plus* an instant shift up or down one speed in both high and low range.

- *Finger-Tip Hydraulic Steering* control eases operator fatigue.

- *140 Drawbar Horsepower* gives you more working horsepower than any other crawler.

No other crawler tractor has any of these profit-building features that shrink your costs of operation. Like every operator who has applied the seat of his pants to the comfortable cushion of the TD-24, you too will say, "It's a dirt-moving demon—no other crawler can compare with it."

See your International Industrial Power Distributor now and get the champion crawler of them all—the International TD-24—to work for you.

INTERNATIONAL HARVESTER COMPANY • Chicago

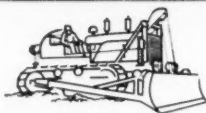
Hot news from the "grapevine": J. W. Mosely, contractor on the big Grapevine Dam project near Dallas, Texas, says of his International TD-24's, "In my estimation, the International TD-24 crawler tractor is the new champion of crawlers."



INTERNATIONAL INDUSTRIAL POWER



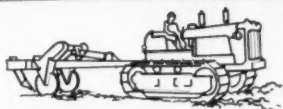
INTERNATIONAL
HARVESTER



CHAMPION OF 'EM ALL

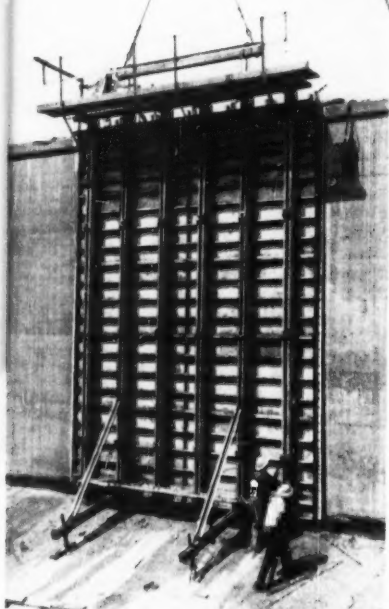
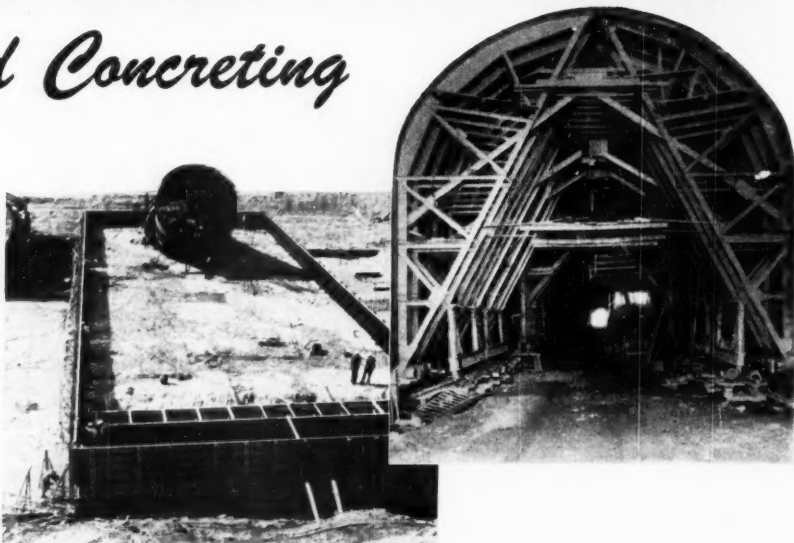


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Speed Concreting
of
BIG
jobs



HERE are a few typical examples of the modern, mechanized way to speed heavy construction jobs and save money in the process. When you use Blaw-Knox Steel Forms, there's no delay for dismantling or assembling. Fewer operations, less auxiliary material and fewer workmen are needed. They are designed to fit the widest variety of work, from big tunnels, bridges or dams to small sewers, with many perfected details that cannot be duplicated in wood forms.

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BETTER BUY... NORTHWEST!

Here is but a part of the list of advantages that Northwest has for you — a list of advantages that puts Northwest far in the lead from the standpoint of low upkeep cost, ease of maintenance and high output.

They deliver the satisfaction that makes the Northwest the best for the heart of the job. Plan now to have one. Let us tell you more about why one out of every three Northwests sold is a repeat order.

Simplicity of Design... Means easy, low-cost maintenance
Cast Steel Bases with Cast Steel Machinery Side Frames... Plenty of strength — maintains shaft alignment
Easy Convertibility... Makes possible quick machine changes for any class of work

Ball or Roller Bearings on All High Speed Shafts... Minimum loss of power to friction
"Feather-Touch" Clutch Control ... Ease of operation without pumps, valves or tubing. Your Northwest can't be shut down because of control failure

Helical Gear Drive... There is no finer power take off
Uniform Pressure Swing Clutches ... Trouble-free — fewer adjustments — smoother operation

Cushion Clutch... Eliminates the effect of shock overload to parts under power
Northwest Dual Independent Shovel Crowd... Utilizes force of other independent crowd shovels waste

Positive Traction while turning as well as when going straight ahead gives the larger Northwest the ability to travel where other types of crawlers have difficulty.

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You can't afford anything but the best in the heart of the job. Specify a proved Rock Shovel and you'll never have to worry about any kind of digging.

only the best
for the heart of the job

MAKE YOUR KEY MACHINE
AREAL ROCK SHOVEL

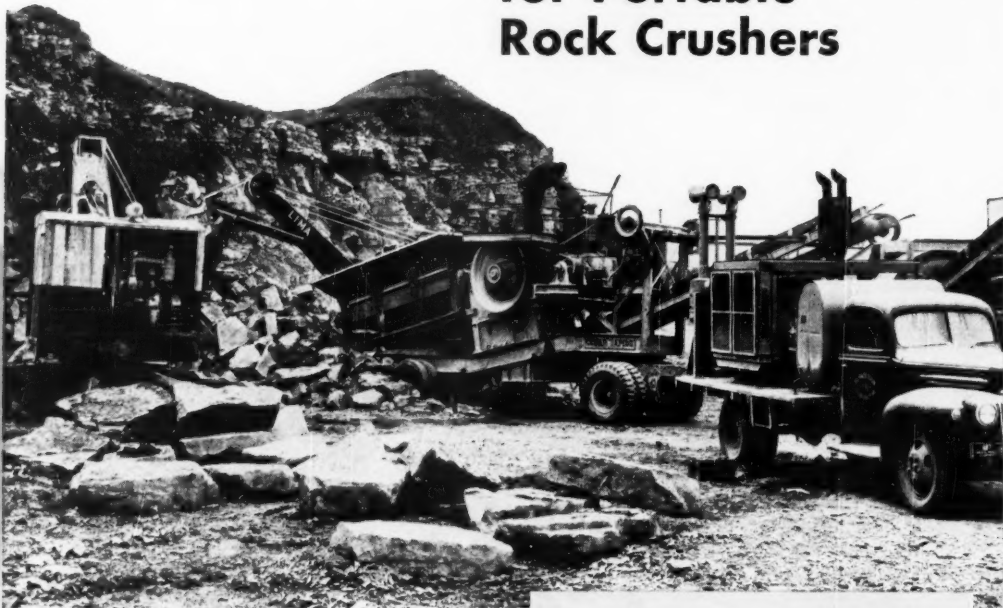
PROFIT

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CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Best Power there is

for Portable Rock Crushers



THAT'S what hundreds of operators like B. L. Anderson of Cedar Rapids, Iowa, are saying about General Motors Series 71 Diesels—and with good reasons.

GM Diesels pack lots of rugged power, yet their sensible size and weight make them easy to move and simple to set up. Efficient factory-built multiple engine units are available. Virtually every power need can be filled.

ALL GM Diesels are 2-cycle, with power at every piston downstroke. They're smooth-operating—easy to start on their own fuel—and quick to respond when picking up a load.

A truck-mounted GM Diesel Twin Six drives the 40" hammermill, a single six powers the 20" x 36" jaw crusher on this Cedar Rapids portable unit, one of two GM Diesel-powered plants operated by B. L. Anderson in eastern Iowa. Each plant averages 130 tons of ¾" road rock per hour. Operating 18 GM Diesel engines in various pieces of equipment, Anderson has lost only one day's operation in three years due to engine failure.

These qualities are important in any rock-crushing operation. So it's certainly worth while to get full information on these hard-working, easy-to-maintain 2-cycle Diesels. Drop us a line and we'll see that you get it.

DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES... Up to 200 H. P.

DETROIT 28, MICHIGAN

MULTIPLE UNITS... Up to 800 H. P.

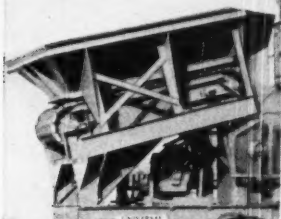
GENERAL MOTORS

DIESEL BRAVN WITHOUT THE BULK



Labels in the diagram include:

- TOP CONVEYOR
- 2 INCH SCALPING SCREEN
- 1/2 INCH CRUSHER
- 1/2 INCH SCREEN
- 2 INCH SCALPING SCREEN
- SAND, PIPE CONVEYOR
- 3/4 INCH ROLL
- 3/4 INCH PLATE FEEDER
- THRASHING ROLL CRUSHER
- MOTOR
- HITCH PIN
- UNIVERSAL JOINT DRIVE
- SIZE DELIVERY CONVEYOR
- UNDER CONVEYOR
- OPTIONAL - DUST COLLECTOR
- SWING GATE
- REAR RUNNING GEAR ASSEMBLY WITH EQUALIZER



Gravel pits containing large rock are no longer a problem. Because the jaw crusher is much larger, the 293-QS takes oversize rock ordinarily rejected. Universal Engineers took the famous Universal 293-Q TwinDual Pacemaker quarry plant, removed the apron feeder, and installed a scalping screen. This screen scalps pit oversize to the primary jaw crusher and screens out sand and gravel not requiring crushing. Material requiring secondary crushing is by-passed to TwinDual Rolls.

Jaw and roll crushers, hammermills, screens, conveyors and bins in any combination—stationary or portable.

4700 W. Division St., CHICAGO 51, ILLINOIS
Phone SPaulding 2-9300



"C" **TOURNAPULL.**

gives you year-round PROFITS



C Tournapull prime mover . . .
190 h.p. diesel . . . 5 speeds to
30 m.p.h. . . . 21.00 x 25 low-
pressure tires . . . power steer, 90°
turns . . . electric controls . . .
uses 4-wheel multi-disc air brakes,
braking surface 4,176 sq. in.

No other dirtmover can offer you the opportunities for steady earnings that come to you with C Tournapull. Behind this high-speed, rubber-tired prime mover you can interchange at will six different types of money-making equipment to fit the times, the season, and your own profit opportunities. Each fits specific needs for earning extra profits on your own jobs, for good pay on sub-contracts, or for high-rate rentals.

Note that each of these auxiliary interchangeable units is a simple, rugged, specialized tool for doing certain types of work at a far lower cost than is customary with general purpose equipment. When you buy any one combination with the C Tournapull prime mover you get with it an extra value in insurance of steady and profitable earnings, because of its great versatility of application with other hauled units.

Tournapull, Tournettone, Tournamixer. Trademark Reg. U. S. Pat. Off. Tournaroller, Tournashopper-Trademark G.I.T.

To: **R. G. LeTOURNEAU, INC., Peoria, Illinois**

Please send information on C Tournapull prime mover for work with:

☐ Scraper ☐ Rear-dump hauler ☐ Bottom-dump hauler ☐ Flat bed ☐ Crane ☐ Concrete Mixer

NAME TITLE

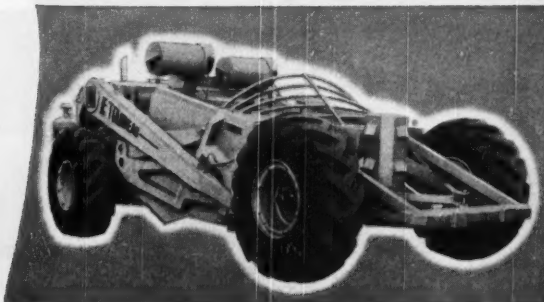
COMPANY TYPE OF BUSINESS

STREET CITY, STATE

If you have work to subcontract for any of tools shown, please describe fully in letter and we will have your local LeTourneau Distributor put you in touch with nearest owner equipped to handle your work.



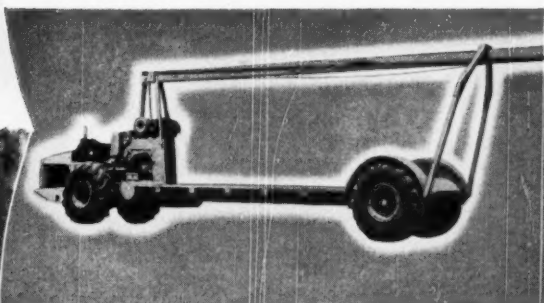
interchangeability



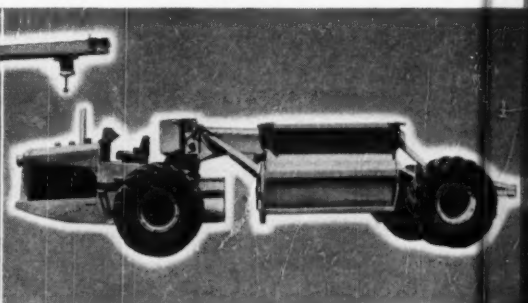
TOURNAPULL . . . C Roadster loads 13.5 cubic yards (capacity 16 tons). In any kind of scraper dirt on either long or short hauls, will beat all previous LeTourneau Scrapers in this size range for both output-per-day and cost-per-yard. Optional hauled units, bought as needed, cost \$4500 to \$7400, prime mover change takes only a few hours.



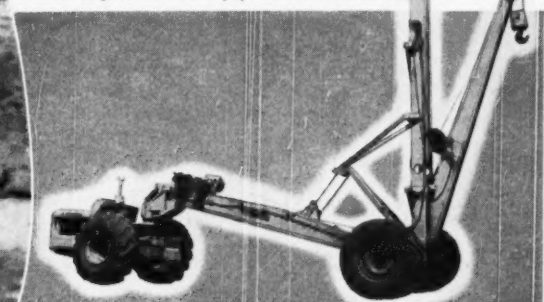
TOURNAROCKER . . . a revolutionary new rear-dump haul unit for use under shovel, dragline, conveyor or other loading equipment. Capacity 16 tons or 16.5 yards heaped. Big shovel target, 7' 10 1/2" x 11' 2" . . . 15' 11" wheelbase. Simple electric body hoist. Dumps clear over bank, tips vertical to clean fast. Turning radius 90° or 12 1/2'.



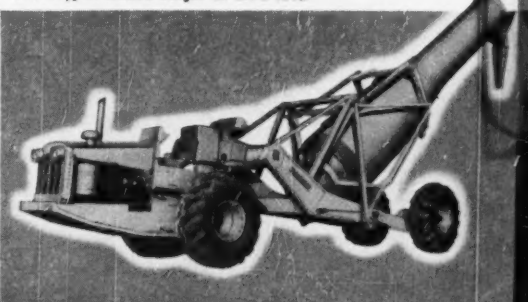
TOURNAHAULER . . . 20-ton flat-bed can take heavy construction, oil field, logging, and mining equipment and supplies on or off highways or cross country. Traveling overhead monorail car with 5, 10 or 15-ton electric hoist optional — one-man operated from the ground by remote control or from the cab. One hauling contract often pays for entire cost of hauler.



TOURNAHOPPER . . . bottom-dump hauler . . . 15-yards heaped, 16-ton capacity. Tournamatic differential, giant tires, and high clearance take it through muck and gumbo. Easy loading . . . top opening 8' x 8'. Easy to drive over windrows, clamshell-type dump-doors lift clear, give 22" clearance open. Turn radius 14'. 51% of loaded weight on drive tires.



TOURNACRANE . . . capacity, 15 tons with full maneuverability and travel with maximum loading. Maximum lift 35', reach 35'. Sliding boom on tilting track gives unique load maneuverability for structural repair and erection. Individual electric motors control each function independently. Reaches into "impossible" places . . . goes anywhere through sand, mud or gumbo.



TOURNAMIXER . . . transit-mix unit of 6 or 7 yards capacity ready to go anywhere on or off highway. Mixing speed 7 to 10 r.p.m. Two discharge speeds — 7 to 20 r.p.m. No need for chutes or elevators, Tournamixer dumps directly into forms at horizontal distance of 10' 7" back of wheels or at elevations from 4' 10" to 20' 8". All electric control from driver's seat.

LETOURNEAU
PEORIA, ILLINOIS



TOURNAPULLS

MORE YARDS PER HOUR WITH RUBBER-TIRED POWER

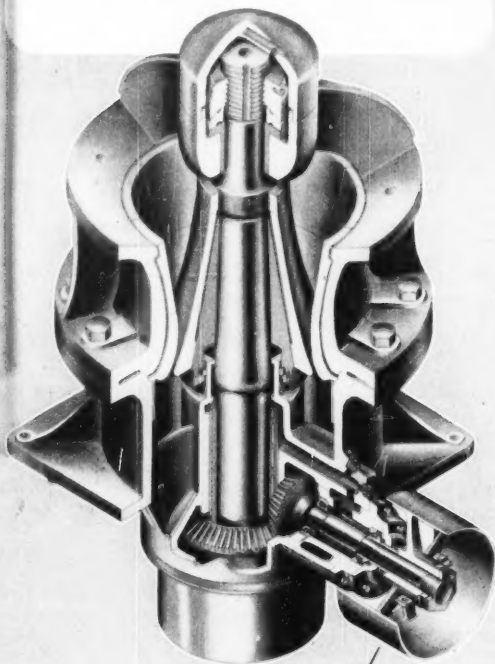
Job-Produced Aggregate Costs Less . . .



The cost of aggregate used on large construction projects can be reduced by producing it on the job with a Traylor TY Reduction Crusher. This rugged machine is unrivalled for simplicity of design and trouble-free operation. With a bare minimum of maintenance, it assures a steady flow of a *uniform* product, remarkably free from slabs and fines.



A TRAYLOR TY's great working range offers greater "job-flexibility" than several less adjustable machines. With a Traylor TY on the job you are sure of having the *right* product at the *right* time . . . in the *right* amount. Plan now to cut aggregate costs and increase profits on your next job with a Traylor TY Reduction Crusher.



When Traylor Curved Concaves and Bell Heads are on the job

power is used efficiently as a direct crushing force. Curved crushing surfaces check lifting and churning of material . . . reduce power loss and excessive waste fines. The increased capacity of each succeeding zone in the crushing chamber eliminates choking and packing . . . assures continuous, trouble-free production to keep pace with the tightest schedule. Write for bulletin 5112 for more complete details on a Traylor TY Reduction Crusher.

TRAYLOR ENGINEERING & MANUFACTURING CO.
109 Mill St., Allentown, Pa.

Sales Offices: New York, N.Y., Chicago, Ill., Los Angeles, Calif.
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P. Q.

Traylor

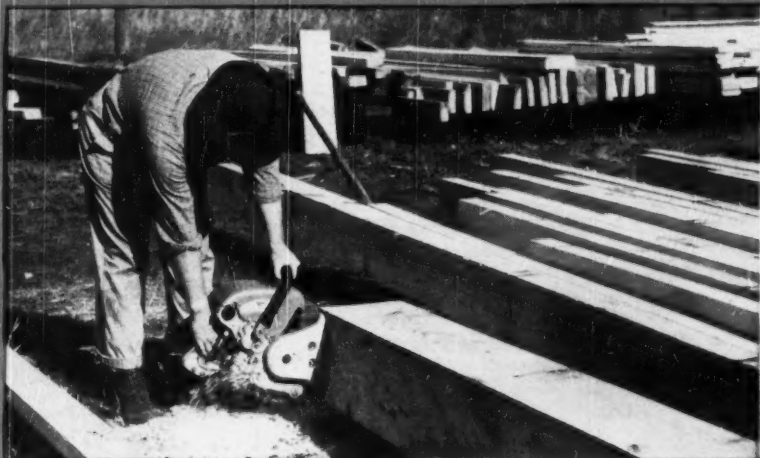
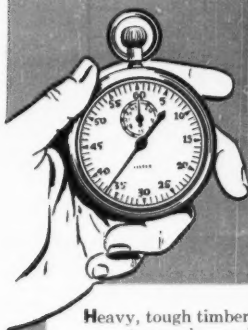
Rotary Kilns, Coolers and Dryers
Grinding Mills Crushing Rolls
Jaw, Reduction and Gyratory Crushers

A "TRAYLOR" LEADS TO GREATER PROFITS



DISSTON® CHAIN SAWS

SAVE HOURS...DOLLARS...EFFORT



The Disston Unit Handles Jobs like this in Seconds, not Minutes.

Heavy, tough timbers cut fast, clean and true. The operator ready—and fit—for another and another job, in the same hour! Extra-profitable use of manpower and assurance of meeting work schedules with Disston Chain Saws. They're Mercury engine powered—sturdy and easily operated—to shorten and lighten the cutting of any construction timber—piling—poles—ties—logs—trees.

Contractors, timbermen, lumbermen, railroads, construction and maintenance men in all fields are

proving that Disston Chain Saws mean savings. Special Disston Features include: Quick, sure starting • Full power cutting with engine in any position • All controls centered in one hand • Smooth running, full-precision bearings throughout • Completely self-lubricated • Magneto sealed against dirt and moisture • Air and fuel filters stop dirt and sawdust • Chain and guide rail of hardened and tempered Disston Steel • Backed up by experienced factory-trained dealers.

NEW LOWER PRICES—



DISSTON 30" LIGHT CONVERTIBLE WITH CHISEL CHAIN

Favorite all around saw for 1-Man or 2-Man* operation including the larger jobs.

\$332.00

DISSTON 24" WITH STRADDLE CHAIN

Excellent for 1-Man or 2-Man* operation on medium jobs. *With addition of Helper Handle.

\$304.50

DISSTON HANDY HELPER HANDLE

Quickly and simply attached—on the job anywhere—to 30" and 24" units, for 2-man jobs.

\$10.50



DISSTON 18" SAW FOR 1 MAN

The popular 1-man unit for felling, bucking and limbing.

\$299.50



DISSTON 1-MAN 15" BOW SAW

Quick, clean work on deep cuts that pinch the standard type guide rail. Also sold as a separate attachment, (\$46.00) quickly interchangeable with standard guide rail on any of above units.

\$323.00

DISSTON SELF-FEED CHISEL CHAIN

Extra fast, maneuvers easily. Makes angle cuts and bucks upward smoothly. Superior for tough grains . . . close-to-ground felling.

DISSTON EXTRA DUTY 2-MAN SAW (12 hp)

Saves hours—manpower—money—doing the big, tough jobs. 12 hp. Stands the gaff. New lower prices with Chisel Chain from \$620.00 for 2' rail to \$696.00 for 7' rail.



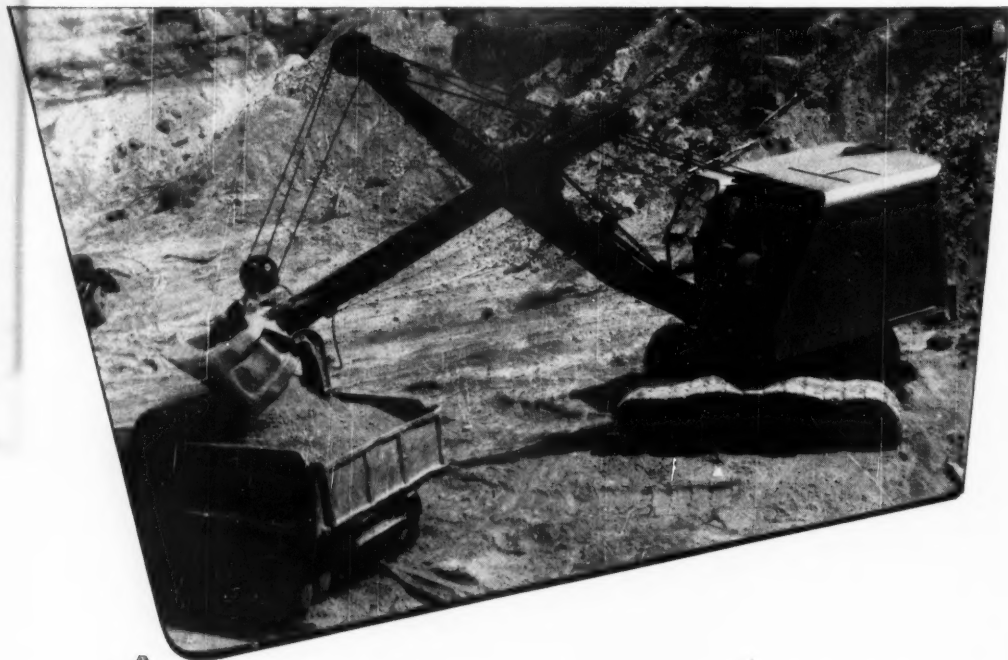
HENRY DISSTON & SONS, INC., 148 Tacony, Philadelphia 35, Pa., U. S. A.
In Canada, write: 2-20 Fraser Ave., Toronto 3, Ont.

What do you get when you buy a ¾ yard shovel?

to get the
most for your money
make your own
comparison

A few essential specifications of the heavy-duty 45 are listed here so you can compare them with other ¾ yard shovels. Make your own comparison and you will buy BAY CITY for the biggest value in excavating and material handling equipment. Let's get acquainted — Write for catalog today. BAY CITY SHOVELS INC., Bay City, Michigan

	BAY CITY MODEL 45	Other ¾ Yd. Shovels
WEIGHT	45,000 lbs.	
POWER	81 HP @ 1200	
ENGINE DISPLACEMENT	517 Cu. In.	
SHOVEL BOOM	19'-0"	
CROWD	One-piece Chain	
DIGGING RADIUS 45°	28'-1"	
CRANE BOOM (STD)	35' Pin-connected	
CRANE CAPACITY, 10' RAD.	27,300 lbs.	
BASES	Cast alloy steel	
GEARS	Helical Cut	
CLUTCHES	Mechanical power	
CRAWLER LENGTH	12' 6"	



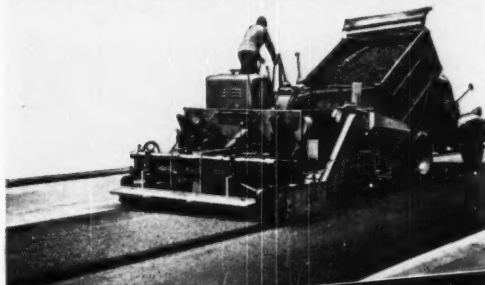
BAY CITY



SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS



New Paver-Type Aggregate Spreader, first low cost, self-propelled spreader that operates entirely on the subgrade, accurately lays all base and surface aggregates, plant-mixed stabilized soil and free-flowing bituminous mixtures up to 12½' (25' in tandem).

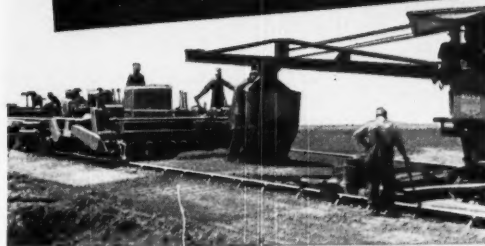


Model BP-5 Bituminous Paver, the automatic leveling, precision paver you've been waiting for, that lays all bituminous materials up to 12½' with almost instant width adjustability — no adding or removing parts.

Jaeger offers

new ways to cut paving cost

on 1950 jobs

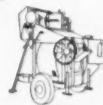


Diagonal Sced Finishers and Concrete Screw Spreaders to "team" with your dual-drum paver. Also cost-saving Combination Spreader-Finisher for single screed work.

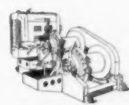
"Air Plus" Compressors in new standard sizes (75 to 600 ft.) that do 4 days' work in 3 with the same men and tools.



"Sara Prime" Pumps
Many 1950 improvements for lower cost pumping.



"Speedline" Mixers
More mixing action, advanced construction in 1950 models.



2-Speed Hoists
and new model Hoist Tower with platform or bucket.

Don't figure new jobs with old tools: See your Jaeger distributor or send for Catalogs on the new equipment you'll need to bid and build successfully in 1950.

THE JAEGER MACHINE CO., Columbus 16, Ohio
Leading distributors in 130 cities of the United States and Canada sell, rent and service Jaeger construction and paving machinery.

JAEGER
engineered equipment

GULF PRODUCTS *and* FINE SERVICE

keep equipment rolling

on Atlanta airport project



MacDougald Construction Company, Atlanta, Ga., is constructing a new municipal airport in that city. The project will cost over two million dollars and calls for approximately 3½ million cubic yards of excavation, 125,000 square yards of concrete paving, and 125,000 square yards of asphalt paving.

WE FIGURE that by using Gulf lubricants and fuels our equipment gains an edge in performance," says Job Superintendent M. C. Aiken of MacDougald Construction Company. "We get the kind of lubrication and fuel efficiency that keeps every unit on the job and operating smoothly—that helps us steer clear of mechanical delays."

There are several important reasons why so many leading contractors are partial to Gulf

products: Gulf lubricants provide an extra margin of protection. Gulf fuels insure full power. Gulf supplies expert engineering counsel and prompt delivery service. Result: top performance from equipment, fewer delays, lower maintenance costs, bigger profits!

Write, wire, or phone your nearest Gulf office today and arrange to use Gulf quality products on your next job. They are quickly available to you through 1200 warehouses.




Gulf Oil Corporation • Gulf Refining Company

Gulf Building, Pittsburgh 30, Pa.

Offices in Principal Cities in 30 States

STEP UP YOUR PRODUCTION
SPEED UP YOUR PROJECTS
BUILD UP YOUR PROFITS



ROCK GRIP

ALL TRACTION

GROUND GRIP

with
Firestone Tires

WHEN you're racing against time, there's nothing more costly than tire trouble. When tires go down, costs go up — and fast! There are just two means of relieving these tire headaches: one is through better tires, and the other is through better tire service. Firestone offers both.

Firestone tires are precisely engineered, both in body construction and in tread pattern, for your job. The cut-resistant treads are extra thick and extra tough. The bodies, armored by four "punch-protector" plies and double-thick sidewalls, are made of heavy, high-tensile, low-stretch, Gum-Dipped cords.

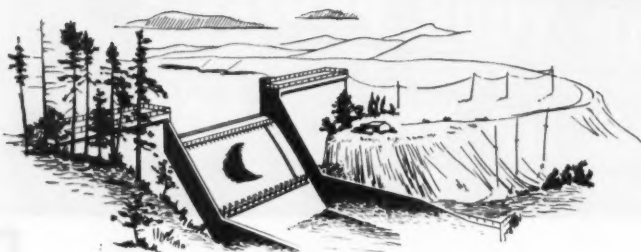
Your Firestone representative will recommend the right tires for your job, and will follow through and see that you get every dime's worth of built-in extra value. Let him prove it.

Listen to the Voice of Firestone every Monday evening over NBC

Copyright, 1950, The Firestone Tire & Rubber Co.

**WHEN YOU BUY REPLACEMENT TIRES
OR NEW EQUIPMENT INSIST ON
FIRESTONE OFF-THE-HIGHWAY TIRES**

Ahead of Schedule



**with equipment
that's ahead in
performance**

DORENA DAM, Oregon, begun in May, 1947, was considered a big 3½-year project. Good organization* plus job-steady "Cat" DW10s were two important reasons why completion time was shortened by almost 12 months.

Ten DW10 Tractors with No. 10 Scrapers spearheaded the "Caterpillar" fleet. Extended sides on the Scrapers enabled each to carry 11 borrow-pit yards. Averaging about 6 trips each on hauls over 1000 feet . . . including 1500 feet of adverse grade to crest of dam . . . these units moved some 570 cubic yards per hour—for a total of about 10,250 yards per 18-hour day. Two D8s served as pushing units in the pits . . . loading time less than a minute. Four additional

DW10s worked on the fill, equipped with dozers and pneumatic-tired tampers.

These records tell a story of speed, volume—and owner-operator satisfaction. Project Manager A. H. Steiner says: "These units are unbeatable. Among their biggest features are their easy loading and ease of operation. Our boys work 9 hours a day and hardly know when lunch hour comes around."

Profit-making speed and volume, little or no interrupting down time over long periods of operation, complete satisfaction—are the "end results" "Caterpillar" owners expect and invariably get.

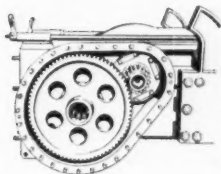
CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

* Under the name of The Dorena Construction Co., this project was put through with the co-ordinated facilities of: G. E. Atkinson Co., Bressi & Brevada Construction, Inc., W. E. Kier Construction Co., and A. Teichert & Son, Inc.

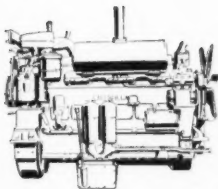


Look under the hide

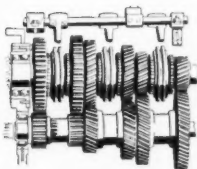
OF THE "CAT" DW10



SPEEDS UP TO 24.5 MPH. Three complete ranges of speed are available with a choice of final drive gears. Many operators keep all three sets in stock to fit their DW10s to the job, ground conditions or haul distances. Differential-type rear end, combined with steering brakes, enables the DW10 to "walk" through soft spots on the fill. Full-floating drive axles are an assurance of dependable performance under the roughest of conditions.



ALL-"CATERPILLAR" BUILT. Undivided manufacturer responsibility! Engine, transmission, clutch and final drive—all are 100% "Caterpillar" built and designed for each other. The engine, 115 honest horsepower, is known the world over for its dependable and economical performance. Its own independent gasoline starting engine is itself started electrically, or can be started by hand in case of battery failure. The engine is the heart of your operations... use the best.



QUALITY BUILT. Typical of the quality designed into the DW10 is the constant-mesh, easy-to-shift transmission. A gear-type pump forces oil over the upper shaft to lubricate effectively the transmission on any grade. To insure long life, a large replaceable filter element guards against destructive abrasive materials. Just one of the many features that can boost production for you.



EASY SAFE OPERATION. One way to get high earthmoving production is to design equipment for safety and ease of operation. Four-wheel stability; hydraulic booster steering; selective-acting air brakes on the DW10 and trailed unit; hydraulically controlled spring-mounted seat and unexcelled visibility—these add up to all-important reasons why operators prefer DW10s.



EASY TO MAINTAIN. "Caterpillar" has always designed for ease of service. Fuel injection equipment that can be replaced like spark plugs, with no adjustments required; a metallic-lined double-disc flywheel clutch that can be removed without disturbing engine or transmission—these are just two of many reasons why owners report full satisfaction. Hundreds of well-equipped "Caterpillar" dealers, each within easy job distance, constitute another reason why DW10s boost hauling profits.

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES

TRACTORS

MOTOR GRADERS

EARTHMOVING EQUIPMENT

CATERPILLAR TRACTOR CO.

Dept. CM-1, Peoria, Illinois

Please send me your latest booklet, "The 'Caterpillar' Diesel DW10 in Action."

Name _____

Address _____



LOW PRICE
Low Operating
Cost
Low Maintenance

3 NEW CEDARAPIDS

...ready now

HIGH CRUSHING AND SCREENING EFFICIENCY **GOOD PRODUCTION • 100% PORTABLE**

THREE new *low priced* crushing and screening plants added to the complete Cedarapids line is good news for your 1950 budget. Now you can get true Cedarapids quality for a low capital investment—the *better* value that results from Cedarapids volume production of a complete size range of aggregate producing equipment. These three new plants, specifically designed for moderate sized jobs, are quality built throughout for all the crushing and screening efficiency of the big capacity plants. Manufacturing economies resulting from simplified design and volume production are passed on to you in lower first cost. Good capacity, low operating and maintenance costs, and long service life are the economical answer to your aggregate producing problems. Write for full details, specifications and prices.

IOWA MANUFACTURING COMPANY • Cedar Rapids, Iowa, U.S.A.

THE NEW SINGLE- PASS

A low priced, simple, heavy duty unit for producing low cost crushed gravel and rock in one pass. Recommended for jobs where the material is screened into only one size, the Single-Pass is ideal for road maintenance work, jobs in locations that are inaccessible to heavier types of equipment and wherever portability and fast set-up are important. High mobility permits inexpensive moving to gravel pits close to the road, resulting in low hauling costs. Extremely low plant maintenance and operating costs are made possible by Cedarapids' high quality construction, simple design and the few moving parts. Four sizes are available with either plain or roller bearing crushers; 1016, 1020, or 1024, or 1216 twin jaw. Bulletin SSP-1 gives complete information.

Cedarapids

Built by
IOWA

THE IOWA LINE of Material Handling Equipment Includes:

- ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS • STEEL BINS • BUCKET ELEVATORS • VIBRATOR AND REVOLVING SCREENS • UNITIZED ROCK AND GRAVEL PLANTS • FEEDERS
- TRAPS • PORTABLE POWER CONVEYORS • PORTABLE STONE AND GRAVEL PLANTS • REDUCTION CRUSHERS • BATCH TYPE AND VOLUMETRIC TYPE ASPHALT PLANTS • HAMMERMILLS • DRAG SCRAPER TANKS • WASHING PLANTS • SOIL COMPACTION UNITS
- STEEL TRUCKS AND TRAILERS • KUBIT IMPACT BREAKERS

PORTABLE CRUSHING PLANTS

for 1950!

THE
NEW
ROCK-IT

Double-duty performance in one machine! This high capacity crushing and screening unit, all on one chassis, does the work of two single crusher units, and at lower cost. It produces "aglime" or road rock, or both, with an output of 60 to 80 c.p.h. of 50% minus 1/4" and 50% plus 1/4" to 1" of limestone, crushing from 18" stones down to specification "aglime" in one operation, with one operator. The famous Cedarapids horizontal "Aglime" Screen permits extremely accurate gradation. Quickly set up, the ROCK-IT can be moved around the pit without dismantling. Low first cost, and low operating and maintenance costs increase your saving. Available in three sizes — Model 20 with the 3033 Hammermill, Model 30 with the 3033 mill, and Model 32 with the 3022 roll crusher. All have 18" x 24" prime jaw crushers. Get full details from Bulletin RIP-1.

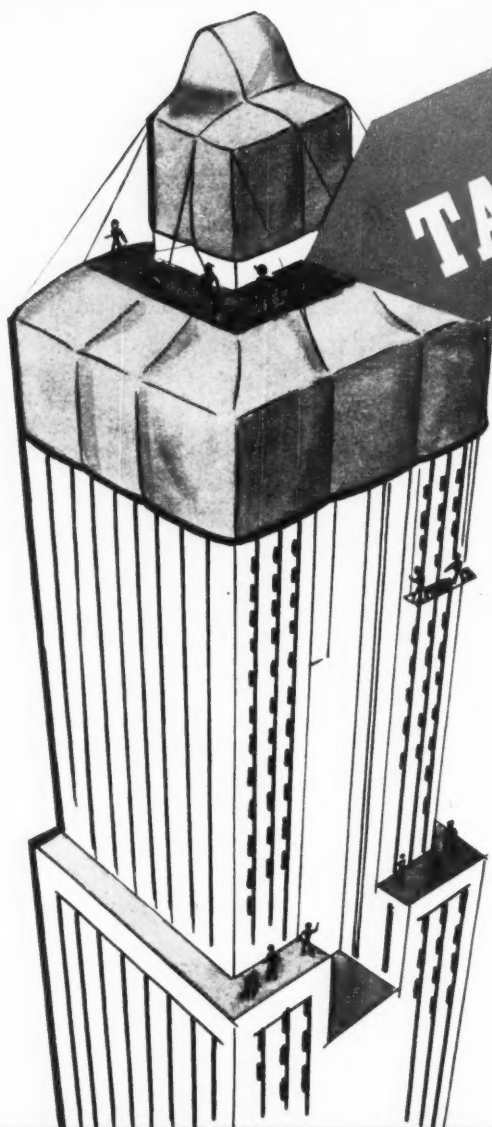
THE
NEW
HAWKEYE
SERIES

Low first cost, thrifty operation and low maintenance mean better roads at lower costs per mile. Producing from 50 to 75 t.p.h., the Hawkeye plant moves with the job to the nearest gravel bank, saving the cost of long hauls. This sturdy, lightweight plant is 100% portable for easy access to out-of-the-way locations and can be taken over almost any roads and bridges. Extremely low operating costs are made possible by the simple design and use of Cedarapids high quality equipment throughout. The large capacity screen and crusher handle a wide variety of conditions, and produce screened sand as well as accurately sized road gravel. With a Cedarapids Hawkeye on the job site, average gravel can be crushed at lower cost per ton, with savings on maintenance, hauling costs, eliminating pit run boulders and oversize cobbles from the roadway. Four sizes available, with 1016, 1020 or 1024 either plain or roller bearing crusher or a 1216 twin jaw roller bearing crusher. It's a complete plant with closed circuit and it is low priced. Write for Bulletin HAWK-1.

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U.S.A.

FINISH YOUR JOBS ON SCHEDULE

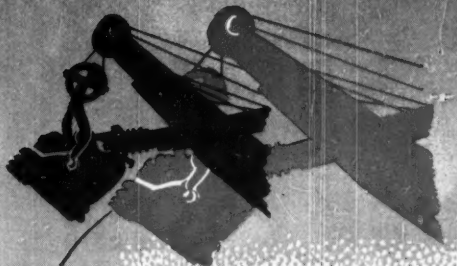


USE
TARPAULINS

Tough, weather resistant canvas covers, always ready for instant use, keep your winter work on schedule, help avoid penalties. Tarpaulins are quickly transferred from job to job—easily moved to meet changing protection demands on individual projects.

Situations calling for canvas protection arise suddenly. Call your tarpaulin dealer today and be ready to beat the weather with adequate supplies of canvas covers.

NATIONAL COTTON COUNCIL · MEMPHIS, TENN.



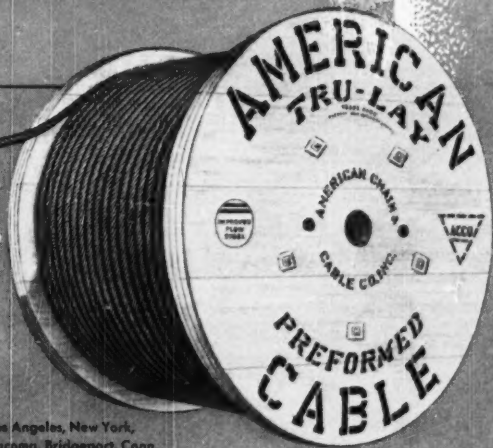
TRU-LAY

Your First Choice

Every field—including wire rope—has its leader. One manufacturer's product which stands out gives longer service. Costs less to use. In short, offers better value.

TRU-LAY Wire Rope, made by American Cable Division, is inherently a fine rope. It is made by a pioneer in the wire rope field. It is made by the originators of preformed wire rope. It is made by men who have spent their lives in factory—and field—testing and improving an already fine product.

Make sure you get the best wire rope for the machines you operate. Make TRU-LAY "Your First Choice."



ACCO

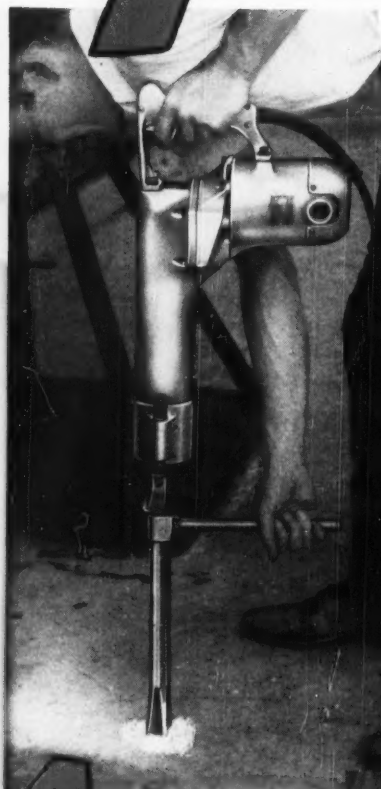
Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Seattle, Tacoma, Bridgeport, Conn.

AMERICAN CHAIN & CABLE
AMERICAN CABLE DIVISION



In Business for Your Safety

7 ways to CUT CONSTRUCTION COSTS!



4

BLACK & DECKER ELECTRIC HAMMERS drive a wide variety of tools to drill or channel in brick, stone, concrete, chip, clean and scale metal; gouge, shape and notch timbers; seam and caulk; tamp and vibrate concrete forms; scuff concrete surfaces to remove form marks. Completely self-contained. Universal motors operate from any standard 110 or 220 volt power line or portable generator. Four models, rated by drilling capacity in concrete for $\frac{1}{8}$ ", $\frac{3}{8}$ ", $1\frac{1}{8}$ ", 2".

BLACK & DECKER ELECTRIC QUICK-SAWS rip, crosscut, dado, angle groove—in wood, metal, stone, compositions. Quickly adjusted for angle or depth of cut. Easy to change blades and discs. Universal motors operate on any standard 110 or 220 volt power line or portable generator. Three models for cutting to depths of $2\frac{1}{8}$ ", $2\frac{3}{8}$ ", $3\frac{1}{8}$ ".

3



B & D "Quick-Saws"*, Hammers, give you MORE OUTPUT...

Per MAN

Black & Decker QUICK-SAWS give you perfect balance, close-coupled design, reduced weight and length, comfortable "saw grip" switch handle, complete safety. B&D ELECTRIC HAMMERS are hard-hitting and amazingly husky, yet compact and light in weight. Result: your men can handle either tool more easily, with less fatigue; turn out more work every day.

Per HOUR

Black & Decker QUICK-SAWS, powered by heavy-duty B&D-built universal motors specially built for tough sawing operations, are ten times faster than hand sawing. Black & Decker ELECTRIC HAMMERS deliver thousands of sharp, positive hammer blows per minute to make light work of many tough construction jobs.

Per TOOL

These B&D Tools are built to last, give you extra years of heavy-duty service! Both tools are fully protected against dust and over-heating; have powerful motors, extra-tough gears, husky housings, all the extra strength and stamina built into every Black & Decker Tool!

WRITE TODAY for free, detailed catalog. See your nearby B&D Distributor for full details on Saws, Hammers, Drills, Impact Wrenches and many other time-saving, cost-cutting construction tools! The Black & Decker Mfg. Co., 659 Pennsylvania Ave., Towson 4, Md.

LEADING DISTRIBUTORS



EVERYWHERE SELL

Black & Decker

PORTABLE ELECTRIC TOOLS

*Trade Mark Reg. U. S. Pat. Off.

LORAIN 50 SERIES . . The First Machine in the 1 Yard Class with Hydraulic-Coupling

NEW! 1-YD. CLASS

A fully convertible machine in the 1 yard class—shovel, crane, clamshell, dragline, hoe.

NEW! 2 SHOVEL BOOMS

All-welded 19 and 21 ft. lengths. Square—heavy duty dipper sticks.

NEW! AIR CONTROLS

Air power steering and air control of tread lock from operator's cab.

NEW! 4 CRAWLERS

4 chain drive crawlers available—11 to 14 ft. long; 9'8" to 13' wide. Driving mechanism, oil enclosed.

NEW! SHOE CLUTCHES

Wider, full-floating anchor type Shoe Clutches for swinging—faster response; longer life.

NEW! HYDRAULIC COUPLING

No engine stall; shocks can't reach machinery. Smooth, flexible, vibrationless power.

Yes, on the new Lorain-50 the hydraulic coupling (fluid clutch) power-take-off is standard equipment, at no extra cost! — In operation this means (1) the engine can't be stalled under any digging conditions; (2) digging impacts and stresses are absorbed before they reach the operating mechanism . . . And the Lorain-50 brings you many other NEW features, in addition to those shown . . . Your Thew-Lorain distributor has the complete story ready for you — today!

THE THEW SHOVEL CO., LORAIN, OHIO

It's the LORAIN 50 for 1950



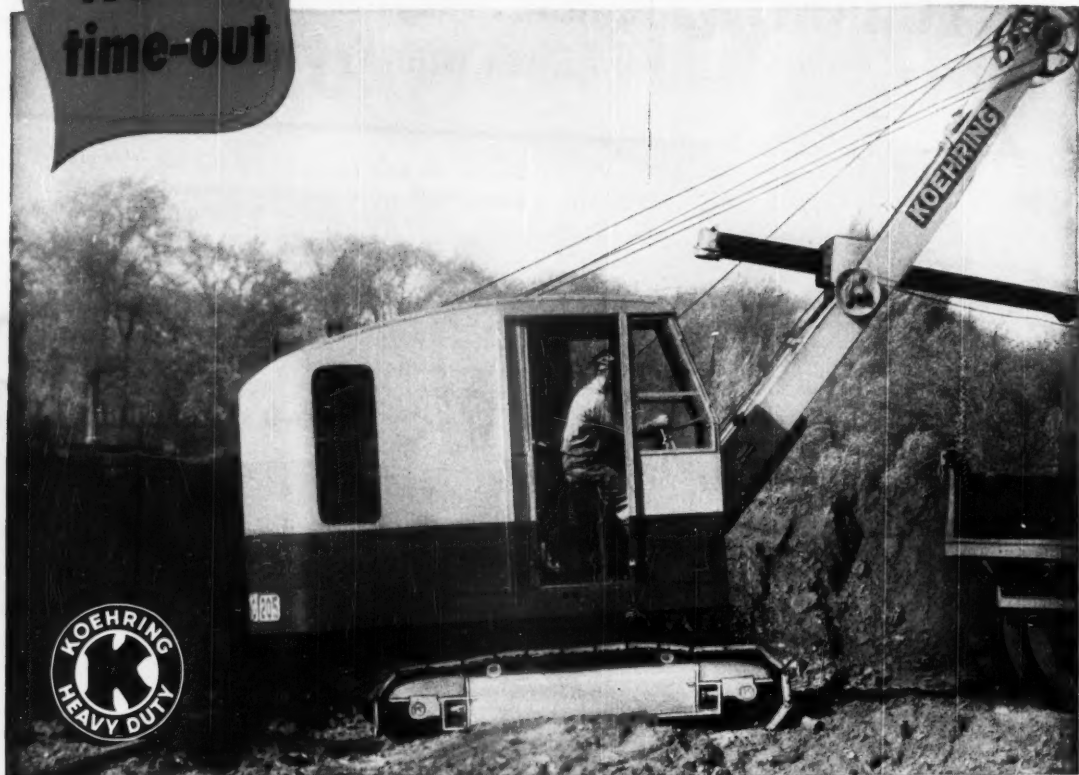
THEW **LORAIN**®

SHOVELS • CRANES • CLAMSHELLS • DRAGLINES
HOES • MOTO-CRANES



**NO
time-out**

for CLUTCH ADJUSTMENTS



KOEHRING DUMPTORS* have the same heavy-duty qualities and big-production ability as Koehring excavators... combined, they give you matched excavating-hauling efficiency. Rugged 6-yard rock body... plus a ton of Dumper strength for every ton of payload, withstand



severest shocks of shovel loading and roughest off-road hauling. Constant-mesh transmission and 3 fast speeds, forward and reverse, provide no-turn shuttle hauling. 1-second gravity dump saves more time every trip.

*Trademark Reg. U. S. Pat. Off.

KOEHRING COMPANY

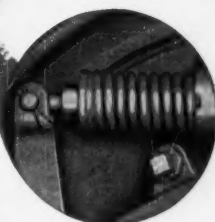
Milwaukee 10, Wisconsin

Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

with KOEHRING HALF-YARD 205



HEAT COMPENSATOR SPRING
CHANGES TENSION ...
Automatically!



● With Koehring ½-yard 205, there's no time-out for continuous manual clutch adjustments. It's no longer necessary for operator to tighten cold clutches when he starts in the morning, or between shifts . . . then loosen them again when clutches warm up. Large compensator springs on the 205's main drum (above), swing and traction clutches automatically make all tension changes . . . maintain full clutch efficiency. No "compromise" settings . . . you get top production all through the shift . . . have accurate, smooth control at all times. Gives you bigger daily yardage as shovel, dragline or pull shovel . . . is

equally important on clamshell and heavy lift crane service, where you have intermittent usage.

Also, with Koehring 205 you get double-fulcrum control linkage on crowd-retract and traction that eliminates overtravel, drag and chatter . . . independent traction, to travel, swing and operate boom all at same time . . . full choice of crawler, truck or cruiser mounting to best fit your operating requirements. Your local Koehring distributor can show you many other 205 features that will save time and assure more production at lower cost on your work. See him today.

K900

OTHER KOEHRING EXCAVATOR SIZES: ¾ yd. 304 • 1½ yd. 605 • 2½ yd. 1005

The **NEW HYSTER GRID ROLLER**

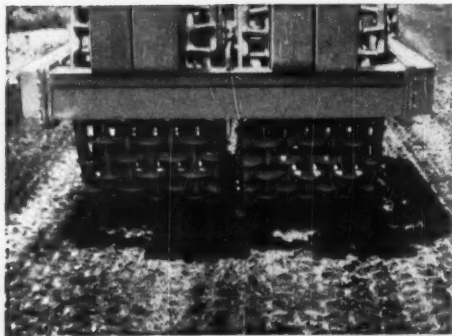


Revolutionizes Black Top Salvage Jobs

HOW IT WORKS...WHAT IT DOES

1. Black top is scarified by motor grader pulling Grid Roller.
2. Scarified black top is pulverized to a maximum of small "fines" by Grid Roller.
3. Pulverized black top is windrowed—road bed cleaned by motor grader—compacted by Grid Roller.
4. Windrow is spread and oil applied, material mixed and relaid and then compacted by Grid Roller. Now ready for seal coat.

HOW IT SAVES TIME AND MATERIAL



Salvaged Black Top compacted in place and ready for seal coat

1. In ONE day ONE man with motor grader and Grid Roller can salvage and prepare ONE MILE of black top road for oiling.
2. Grid Roller produces greater abundance of FINE MATERIAL.
3. Oil usage reduced up to $\frac{3}{4}$ of a gallon per cubic yard—on one county road job a savings of \$343 per mile in oil was effected.
4. Grid Roller salvages all types of black top material. NO NEED TO HAUL AWAY OLD MATERIAL.

Sold exclusively by your "CATERPILLAR" DEALER.
CONSULT HIM FOR FACTS, FIGURES, LITERATURE.

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2921 N. E. CLACKAMAS, PORTLAND 8, OREGON
1821 NORTH ADAMS ST., PEORIA 1, ILLINOIS

BIG NEWS for haulers of BIG LOADS!

New Heavy-Duty **4-TON**

DODGE "Job-Rated" TRUCKS

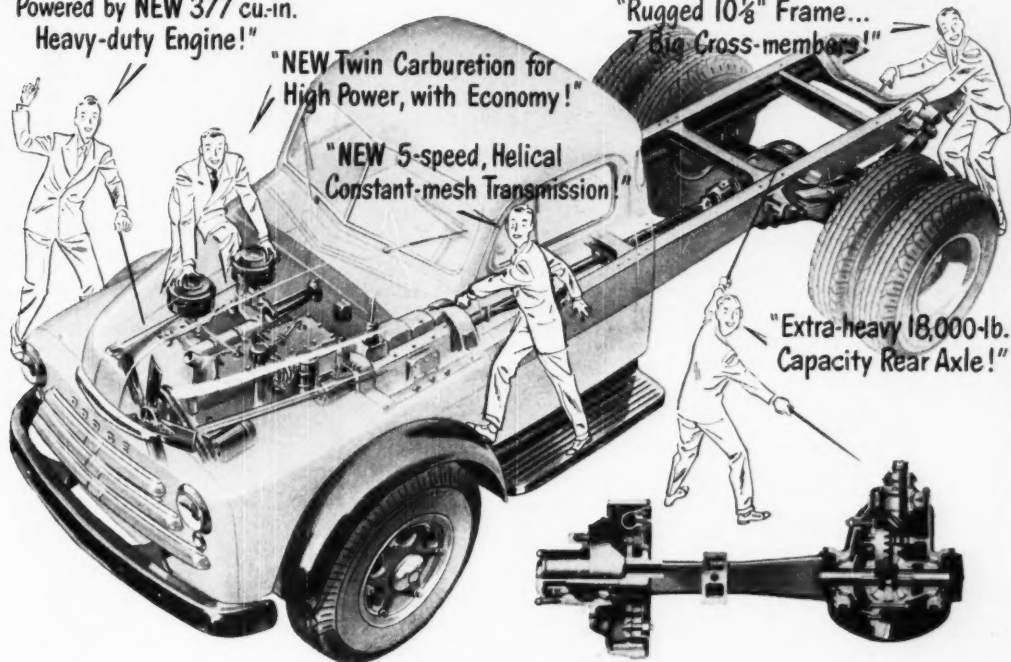
"Powered by NEW 377 cu-in.
Heavy-duty Engine!"

"NEW Twin Carburetion for
High Power, with Economy!"

"NEW 5-speed, Helical
Constant-mesh Transmission!"

"Rugged 10 $\frac{1}{4}$ " Frame...
7 Big Cross-members!"

"Extra-heavy 18,000-lb.
Capacity Rear Axle!"



There's a new champion in the HEAVY-DUTY truck field. It's the new Dodge truck rated at 28,000 pounds G.V.W. . . . 50,000 pounds G.C.W.!

Ample "Job-Rated" POWER flows from one of the finest-performing, and most economical truck engines ever designed. It develops 154 gross horsepower, and 330 pound-feet gross torque.

This remarkable engine contains such advanced long-life features as Silchrome intake valves and inserts. Exhaust valves are Stellite-faced and sodium-filled to resist warping, wear longer.

Hydraulic lifters insure perfect valve operation. Rustproof water distributor tube provides maximum valve seat cooling, and lengthens engine life.

High power output and economy result from two downdraft carburetors. Features are numerous: Dual intake manifold; dual exhaust system; high anti-vapor-lock pump; ceramic fuel filters; velocity-type governors; oil-bath air cleaners, and many others.

This "Job-Rated" load lugger has a new and rugged constant-mesh, 5-speed helical transmission, direct-in-fifth, with an extremely high torque input. A 5-speed overdrive transmission is available.

This 4-tonner has a rugged 10 $\frac{1}{4}$ -inch frame, with 7 and 8 big crossmembers; extra-heavy 18,000- and 22,000-pound capacity rear axles, and many other HEAVY-DUTY features you'll want to study and compare.

If your transportation requirements fall in the 28,000-pound G.V.W. range (up to 50,000 pounds G.C.W.), we believe you'll find this 4-ton heavyweight your long-awaited answer to . . . lower cost hauling!

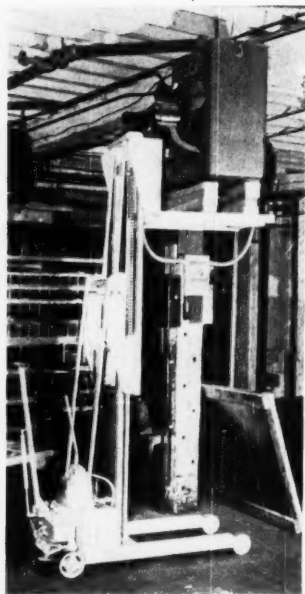
See your Dodge dealer at your earliest convenience.

For low-cost transportation...switch to
DODGE "Job-Rated" TRUCKS

HOW THEY DID IT



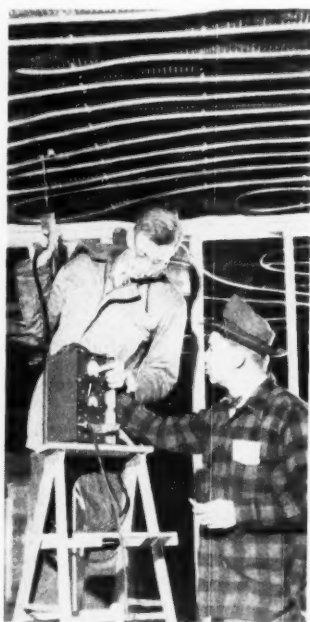
ICE SHOW—CONTRACTOR STYLE. Waterwork intake, 650 ft. long and 12-in. dia. with mechanical gland type joints was assembled as a unit on frozen Clear Lake, Iowa. Dobson Construction Co. of Lincoln, Neb., lowered assembled pipe into dredged lake bottom with winches bridged up on railroad ties.



FULL HEIGHT of 108 in. was just a little shy for placing this unit heater, so a few 2x4 blocks made up difference. This type of LYON-Raymond Corp. hydraulic high lift truck will lower to 6 in. and is fine for placing conduit, steam valves and other overhead installations.



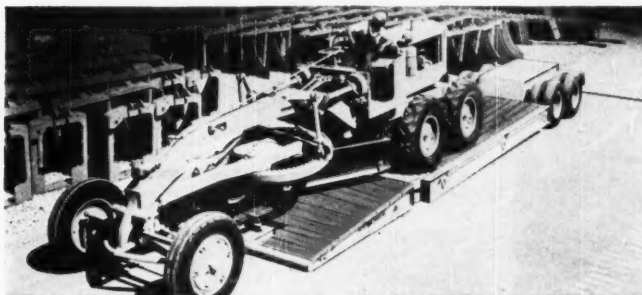
SEVEN EMPTY or two full gondola cars can be shunted easily by this converted Euclid bottom-dump equipped with Cummins diesel. Becker County Sand and Gravel Co., Cheraw, S. C., has been using rig for 12 yr., and it can push or pull a gross weight of 300,000 lb.



LEAK DETECTOR perfected by General Electric's Special Products Division is used to check radiant heating tubes in unfinished ceiling. Sensitive instrument picked up traces of freon which was introduced into 1,800-ft. length of tubing for test purposes. In 2 hr. more than 100 tubing joints were checked and three previously undetected leaks found.

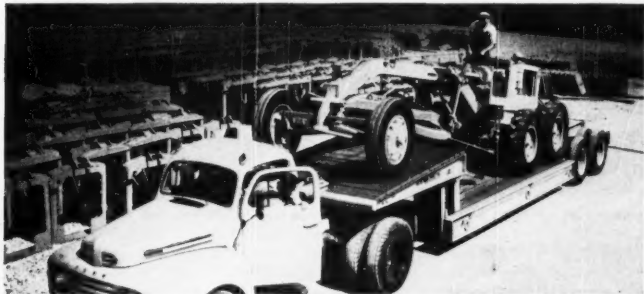
LOADING MOTOR GRADERS MADE EASY BY FOLDING GOOSENECK

Loading equipment quickly, and without ramps or cribbing is possible with a new patented "Carryhaul" Folding Gooseneck recently introduced by the Martin Machine Company, Kewanee, Illinois. The new trailer features a Folding Gooseneck which, when lowered to the ground, forms a loading ramp. Front end loading permits a very low platform height, assuring greater safety, greater clearance of viaducts, bridges, wires. The new trailer is available in capacities up to 100-tons. Like other Martin "Carryhaul" trailers the new Folding Gooseneck is being sold exclusively through "Caterpillar" dealers everywhere.



New Folding Gooseneck lowered to form ramp for loading motor grader. No loading ramps or cribbing are required. Loading is completed in a few minutes.

Below: Folding Gooseneck raised to towing position. Low platform height offers greater clearance, safety.



World's Largest Folding Gooseneck Trailer



Loaded for shipment to Humble Oil Company, West Baytown, Texas, this 65-ton Martin Folding Gooseneck trailer stood 17 ft., 4 in. high on the car. A 2 in. head clearance permitted travel in daylight only.

(Advertisement)

MARTIN PRESENTS THE NEW FOLDING GOOSENECK TRAILER

TO CARRY



... TO LOAD OR UNLOAD



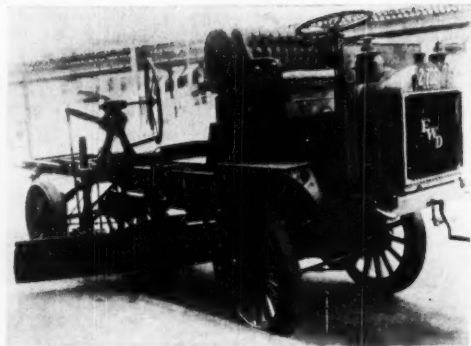
Write for complete information and specifications on the new Martin FOLDING GOOSENECK TRAILER.

MARTIN
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TRAILERS
MARTIN MACHINE COMPANY
KEWANEE, ILLINOIS—YOUR CATERPILLAR
DEALER IS YOUR MARTIN DEALER

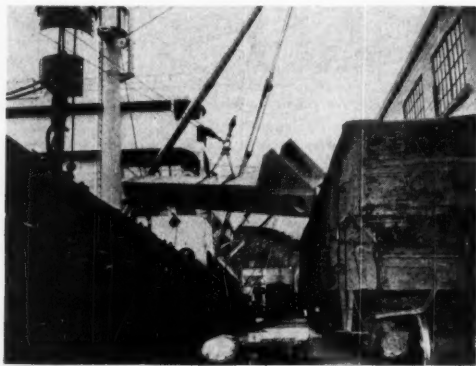
JOB ODDITIES



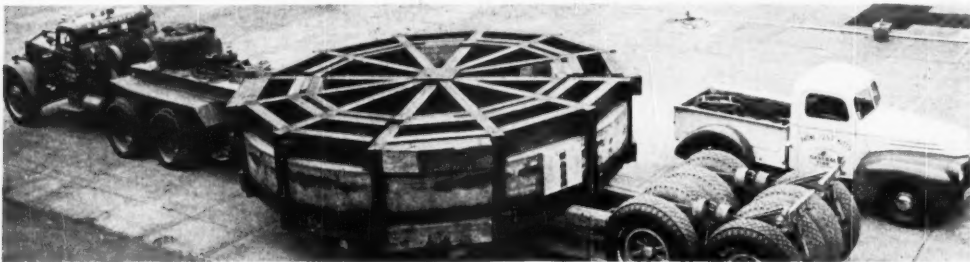
BEHIND THE SCENES at cornerstone laying ceremony of U. N. Secretariat Building was lots and lots of Patent Scaffolding Co.'s Tubelox steel scaffold, Chesebro-Whitman Co., Long Island City, erected frame behind backdrop as well as speakers' stand and double-decked press gallery with this type of scaffold which has also been used on hoist towers and under glaziers and stonemasons on building.—Acme photo



OLD TIMER is this Four-Wheel-Drive truck claimed to be one of first equipped with under-body road maintenance blade, which had to be operated by hand from frame of truck. Photo was taken in 1923.



PIECE BY PIECE an entire 350-ft. steel bridge is loaded in San Francisco to span Pasig River in Manila in place of the old Quezon Bridge, destroyed during war. Moore Drydock Co. of San Francisco knocked down 1,200-ton structure into 2,000 sections, moved it in 32 freight cars and shipped it via Pacific Transport Lines, Inc.—Acme photo



ATOM-SMASHING COIL was delivered to Carnegie Institute of Technology's Nuclear Research center at Saxonburg, Pa., recently. Although distance from Brooklyn Navy Yard's Naval Research Bureau, where it was wound, is only about 375 mi., 97-ton coil had to travel 3,600 mi. for ultimate delivery. Ship route included Atlantic

Coast, Gulf of Mexico, Mississippi, Ohio and Allegheny rivers. It was finally transported 33 mi. overland from Kittanning, Pa. to Saxonburg on I-beam trailer equipped with heavy-duty 1400x24 General tires without damage to highways. Another case of the long way around being the safest way home.

"ATLAS MORTAR CEMENT..."

has proven itself
in every respect,"

SAYS Mr. Charles Taylor, President
Taylor Construction Company
South Bend, Indiana



June 23, 1949

Universal Atlas Cement Company
Chrysler Building
New York 17, N.Y.

Gentlemen:

As you know, we have used Atlas Mortar Cement on many jobs during the past four years including the Fruehauf Trailer Building in South Bend, Indiana and it has proven itself in every respect.

Our masons are well pleased with the increased workability obtained with Atlas Mortar and the way in which it spreads under the trowel. It carries the sand well and always gives a very good yield.

Since Atlas Mortar is fat and plastic, we are able to make true tight joints.

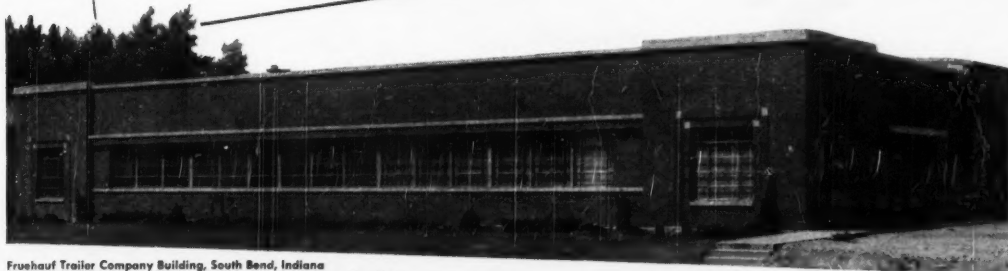
Very truly yours,

Charles O. Taylor
Charles Taylor
President

Increasingly, masons and contractors, like Mr. Taylor, report similar satisfaction with Atlas Mortar Cement. Masons prefer its buttery plasticity and the easy way it responds to the trowel. And contractors appreciate its satisfactory yield, its strength and color. Its outstanding durability is proved by rigid laboratory tests.

Backed by years of research, Atlas Mortar Cement complies with ASTM and Federal specifications for masonry cement. For further information, write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

OFFICES: Albany • Birmingham • Boston • Chicago
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Fruehauf Trailer Company Building, South Bend, Indiana
General Contractors: Collins Construction Company, Kansas City, Mo.;
Sub-contractors: Taylor Construction Company, South Bend, Indiana

CM-MC-25

SKILLED HANDS PREFER

ATLAS MORTAR CEMENT

THE SATIN OF MASONRY CEMENTS

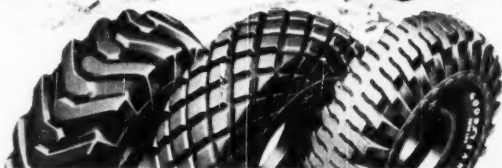


"THE THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND



GOODYEAR'S HARD ROCK LUG is the toughest thing on wheels. It lasts longer, stands up better no matter how rough the going. Try the Hard Rock Lug on your rigs. You'll find it has added protection against cutting, snagging, bruises because the undertread and sidewalls are armored by an extra-tough carcass. And for traction, the Hard Rock Lug has big, husky lug bars that pull equally well forward and reverse. Remember, when the job calls for super-stamina on tough jobs, always **BUY** and **SPECIFY** Goodyear — it pays!



SURE-GRIP
in earth mover and
grader sizes for
maximum traction
on drive wheels.

ALL-WEATHER
with world-famous
"diamond" tread
for flotation and
general traction.

ROAD LUG
dual-purpose tire
for mileage and
economy both off-
and on-the-road.

We think you'll like "THE GREATEST STORY EVER TOLD" — Every Sunday — ABC Network

GOODYEAR

Sure-Grip, All-Weather, Road Lug—T.M.'s The Goodyear Tire & Rubber Company

Machines Are Safer Than Men

DON'T BLAME the machine when you have construction accidents involving equipment, for the odds are that the mishap was caused by human rather than mechanical error. Equipment manufacturers are building safety into their products to the utmost limit of possible protection. Careless and hazardous use of equipment is responsible for so many accidents and both management and operators are to blame.

These facts were brought out in an interesting panel forum discussion at the recent Construction Section meeting at the National Safety Congress in Chicago. Here manufacturers and contractors on the panel told each other why equipment accidents occur, and they answered some mighty pertinent questions from the floor.

Responsibility for safe operation of equipment is threefold: manufacturers, distributors, and job management. Manufacturers are responsible for issuing clear-cut operating manuals stressing safety; distributors are responsible for seeing that someone in the construction organization knows how to operate the equipment properly, and someone on the job is responsible for seeing that the individual operator knows what he is doing. The first two are largely routine and perfunctory—the last is the real responsibility of job management.

Therefore, the final responsibility for safe operation of equipment rests with the contractor. First of all, he must see that the machine is in good working order, is properly main-

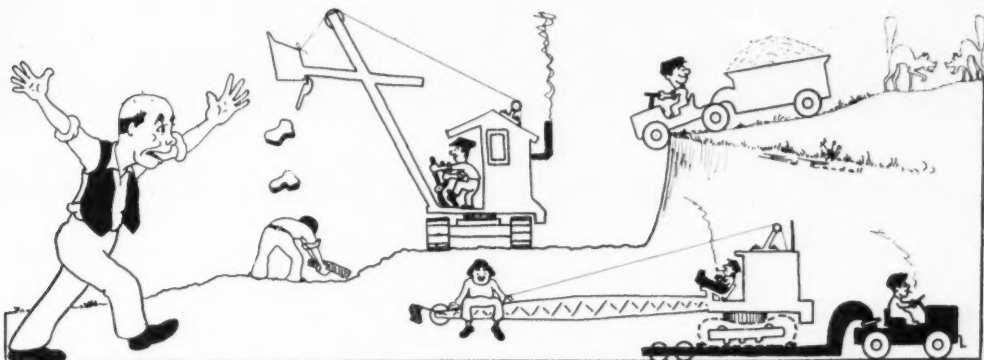
tained, and is ready for operation. Next, he must see that the operator is properly trained and is capable of running the machine in a safe and efficient manner. More important, the contractor must see that the operation of equipment fits into a safe, efficient and productive construction schedule. Preparation for such procedure may mean a training program for operators and mechanics—but whatever program is required, it is the responsibility of management.

Whatever may be the answer—remember that machines are safer than men. Safety in operation of construction equipment means training of operators and scheduling of operations in such manner that the human element comes up to the mechanical element in safe performance.

Only when men equal machines in safety can we expect safe, efficient operation of construction equipment.

ON THE COVER

Leach Construction Co., Miami, uses a 20-ton Lorain Moto-crane with a 95-ft. extended boom to place concrete for a new club being built at the ocean end of Lincoln Road in Miami. You guys up north, fighting cold, snow and blizzards, can envy your fellow contractor down south working in the balmy breath of the Gulf Stream, with warm waters lapping the wheels of your crane and palm trees waving in a comforting background.



SPIKE SEZ: Daggone you guys! You're asking for every accident that ever came down the pike just because you don't know how to prop-

erly run the equipment we give you. Get wise to yourselves before you get all killed dead!



Bechtel Tackles California's Super-Inch Gas Line

STRUNG OUT along a 30-mi. construction front, two crews of Bechtel Corp., San Francisco, are snaking the world's largest gas pipeline through the California hills at a rapid rate. Dubbed the Super-Inch because of its 34-in. size (Big-Inch was only 24 in.), the new line

calls for super construction equipment and super organization of the various pipelaying operations.

A joint project of the Pacific Gas & Electric Co. and the El Paso National Gas Co., the new line extends for 1,600 mi. from Texas and New Mexico gas fields to Milpitas,

Calif., near San Jose. Total cost will be \$150,000,000.

Bechtel Corp. has a \$63,000,000 contract for the 506-mi. section in California, running from Toprock, Ariz., to Milpitas. The first 80-mi. length at the north end was finished last November 30. Work be-

Pigmy Bulldozer Trims Trench Bottom



in 30-Mi. Strides

gan last summer on that section so P.G.&E. could use it for gas storage. Bechtel expects to complete its contract by the end of this year.

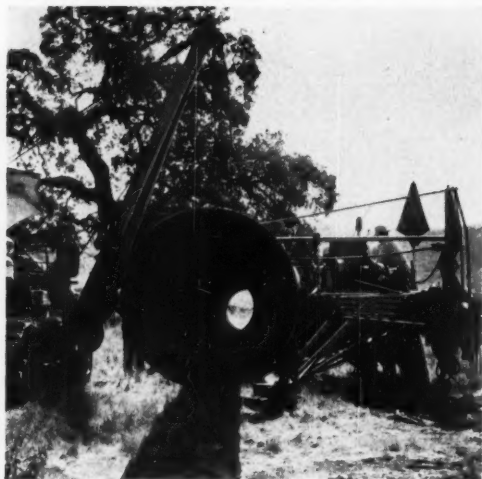
The pipe is being fabricated by Consolidated Western Steel Corp. in 30-ft. lengths, weighing 2.3 tons each.

HANDIEST GADGET on this big pipeline job is this midget Oliver Cletrac bulldozer equipped with 42-in. blade. Following main trench excavation by two big No. 52 Buckeye ditchers advancing 1 mi. per day, tiny tractor rig rolls into trench down earth ramp, breaks up large clods, trims and

levels ditch bottom in preparation for pipe-laying. Rig also backfills temporary cattle and county road crossings. Cage cab protects operator working in trench, eliminating shoring otherwise required by state safety commission.

(Continued on next page)

SUPER-INCH PIPELINE... Continued

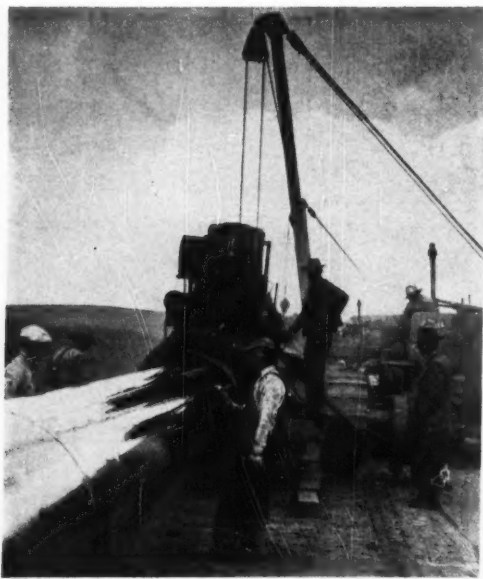


BIG PIPE is wrinkled in this special bending machine built for job. While section is held by side boom tractor and pair of clamps, system of cables crimps pipe maximum of 1-deg. bend. Minimum spacing of wrinkles is pipe diameter.

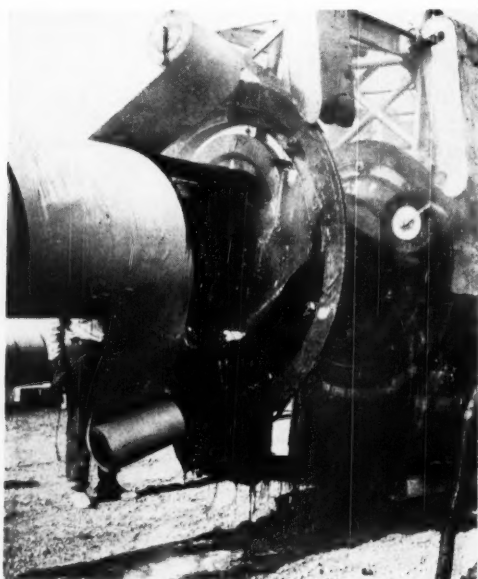


FIRST WELDING STEP doubles up 30-ft. sections into 60-ft. lengths. Self-powered jig creeping inside pipe aligns sections as two welders fix joint with stringer bead, then complete connection in successive passes with Lincoln welding equipment.

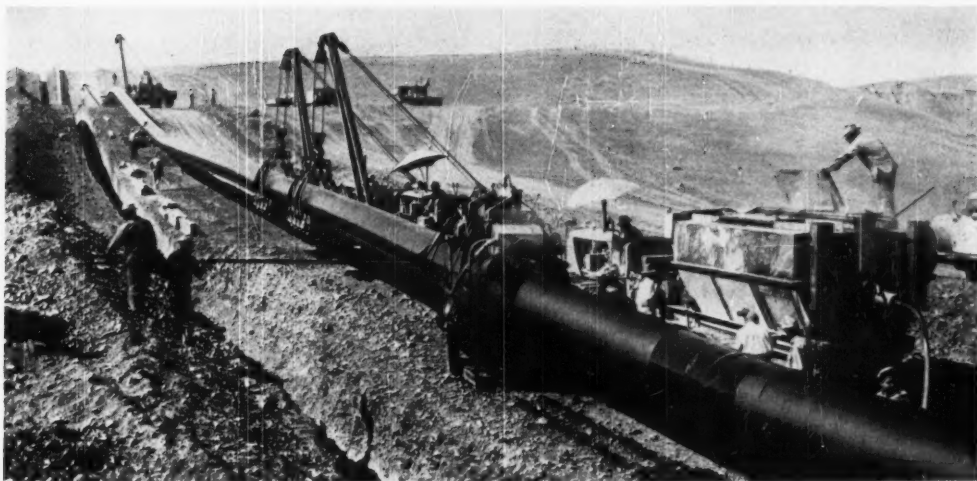
Bending, welding, priming and wrapping precede laying



SUPER CLEANING and priming rig removes dirt and scale from pipe and applies bitumastic enamel primer. Tractor cranes with rolling slings lift pipe so unit—one of two built for job—can ride along line. Workmen touch up missed spots by hand.



ANOTHER WORLD'S LARGEST is self-propelled wrapping machine applying tar at 350 deg. followed by paper cover. Machine weighs 6 tons, travels 800 ft. per hr. Special bending, cleaning and wrapping rigs were built by Perrault Brothers, Tulsa, Oklahoma.



PARADE OF OUTSIZE EQUIPMENT marches along Super-Inch line, cleaning, priming, enameling and wrapping it preparatory to laying in trench. Two side-boom tractors, modified to increase lifting capacity by 50 percent, lift pipe with rolling slings to permit travel

of wrapping machine. Men at left hold lever to counteract torque of wrapping rig. Cleaning and priming machine in background works well ahead of final equipment. Contractor uses two outfits, each working over 30-mi. spreads.

In final stages pipe is handled in long lengths



FLEET OF SIDEBOOM TRACTORS lowers pipe into trench in 4,000- to 6,000-ft. lengths. Peterson Tractor & Equipment Co. modified Caterpillar D8-Trackson MD8 pipelayers to increase capacity to 80,000 lb. Left tracks were moved out 22 in. Counterweight was

moved closer to tractor and increased to 9,750 lb. Boom was extended 4 ft. to 20-ft. length, and two 3-sheave blocks now provide 6-part load line for smooth lowering and added safety. Operators are proficient in teamwork.

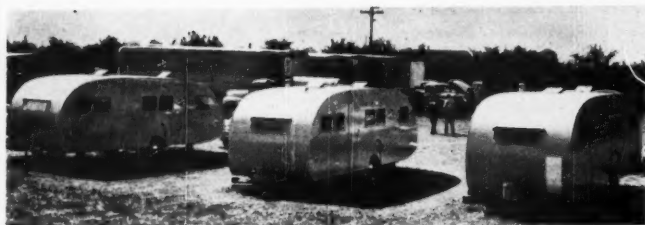
SUPER - INCH PIPELINE . . .

(Continued)

**Mobile outfit
keeps up with
fast-moving
pipe crews**



AFTER PIPE is carefully laid on ditch bottom, angle dozers backfill trench in couple of passes.



THREE TRAILERS and five trailer-vans serve as mobile field headquarters, parts and supply warehouses to cut down transportation distances in covering fast-moving job.



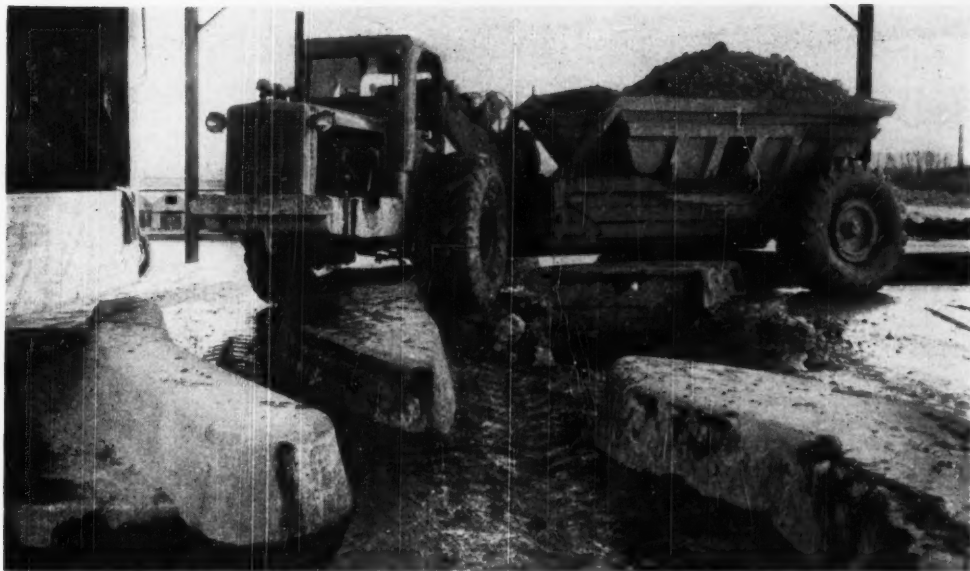
TALE OF THIS STORY. Center of attraction here is pert Marge Ralston, assistant chief, McGraw-Hill Pacific Coast News Bureau, who went right out on job clad in dungarees to get first-hand dope on big project. Here she quizzes Steve Bechtel, Jr., and other project officials at one of the two mobile field headquarters.



VETERAN of Arabian pipelaying projects, Bob Bowman is superintendent for Bechtel on Super-Inch.



CONTACT between crews and field headquarters is by six Motorola radio telephones on pickup trucks. Here Steve Bechtel, Jr., talks to office from truck out on line.



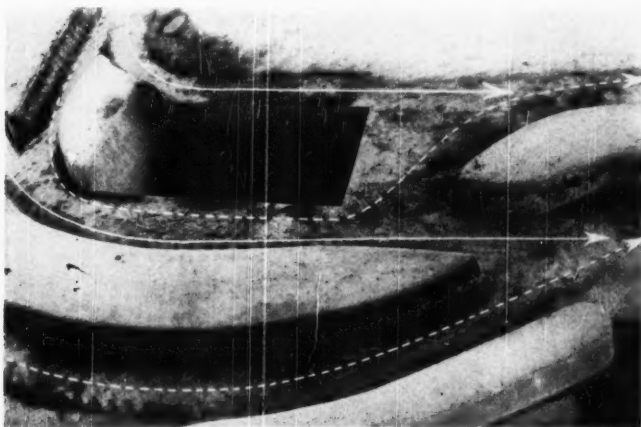
CONCRETE CURBS form grooves to guide Tournatrailers over crusher opening at Belgium cement plant.

Trouble in Spotting Wagons? ...Put 'Em in the Groove

The Problem — At the cement plant of Ciments d'Obourg in Belgium, brand new LeTourneau Tournatrailers were just the rigs for hauling chalk rock from quarry to crusher. But the opening on the unloading

platform above the crusher was only slightly narrower than the width between tires on prime mover and wagon. Side clearance was too close for comfort, and the company didn't want to take a chance on dropping a big heavily-loaded tire into the hole.

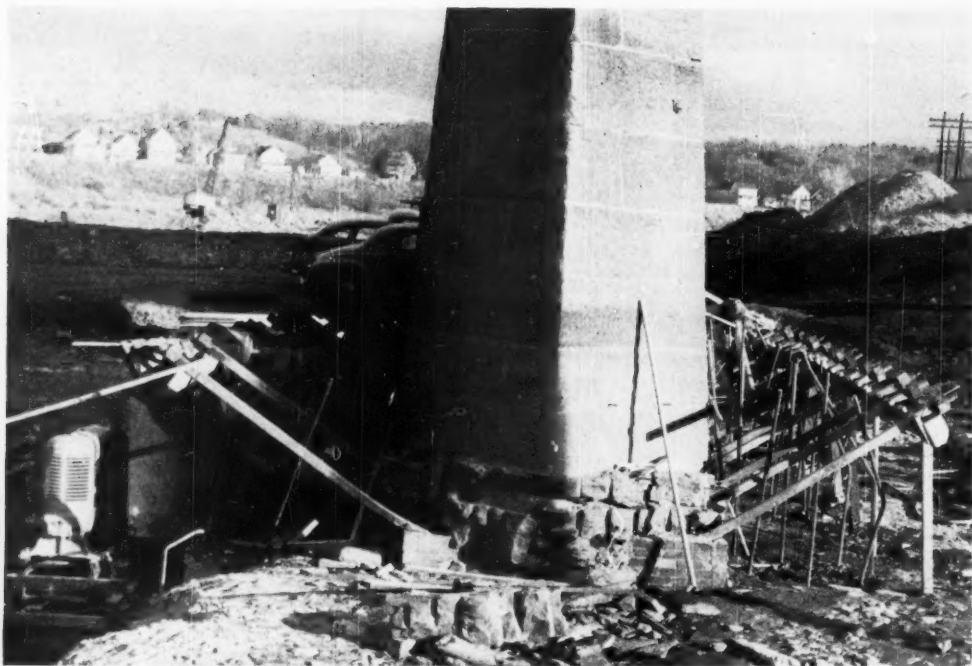
The solution? Simple, says R. G. LeTourneau, Inc., of Peoria, in sending us the dope and accompanying pictures. They built a set of concrete rounded-top curbs to guide the rigs in approaching the crusher, arranged in such manner that the driver couldn't miss—and couldn't get into trouble. The pictures tell the story.



TRACK PATTERN on groove guides. Prime mover tracks follow dotted lines; trailer rear wheels follow solid lines. Pattern was established by marking off crusher opening in sand spread over adjacent lot, then carefully maneuvering loaded trailer into position for dumping. Grooves were then laid out to follow tire pattern.

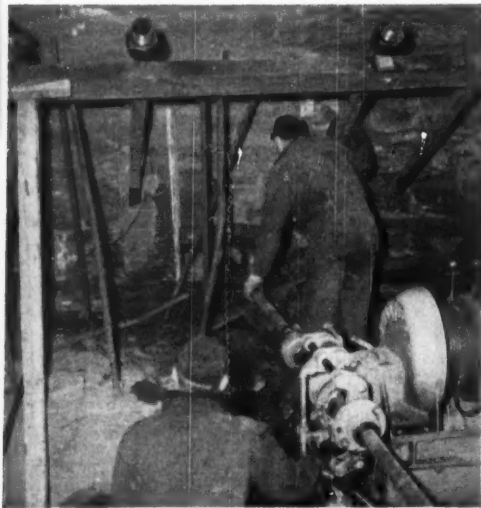


IDEA FOR GUIDES belongs to Paul Mullis, Swiss engineer working under W. Wildt, Technical Director of Ciments d'Obourg.



Without cofferdam protection in river bed, crews insert rods as . . .

Prestressed Cradles Pick Up Bridge Piers



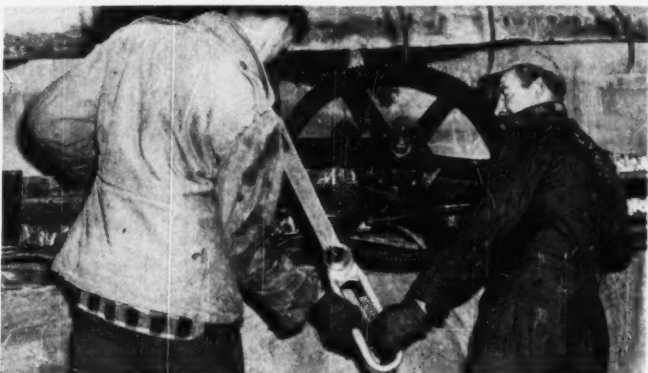
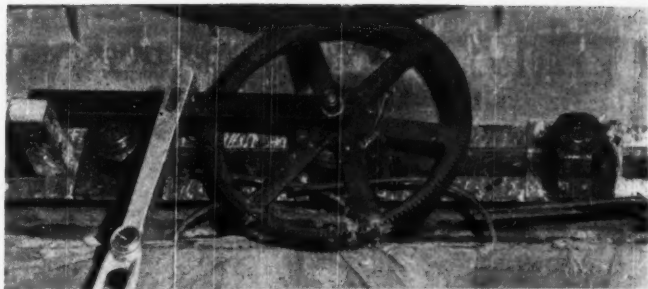
THROUGH HOLES were drilled on 2 ft. 1-in. centers with Joy-Sullivan rig using 6 1/2-in. diamond bit. Note reinforcing rods from caissons; also timber used to align bolts. Next, holes were heightened on each side by use of Worthington . . .



... WAGON DRILLS and braced to receive curved rods. These could not be installed closer than 8 ft. simultaneously. Holes were bricked up, pressure-grouted, and allowed to set for three days before new hole could be drilled within 4 ft.



HOLES WERE WASHED OUT, free water removed, and grout pumped in to fill any voids or masonry veins. Beams were formed full length of piers, 7 ft. 6 in. high by 6 ft. 8 in. wide, and poured with 3,000-lb. concrete, containing high-early cement. After 5-day curing period...

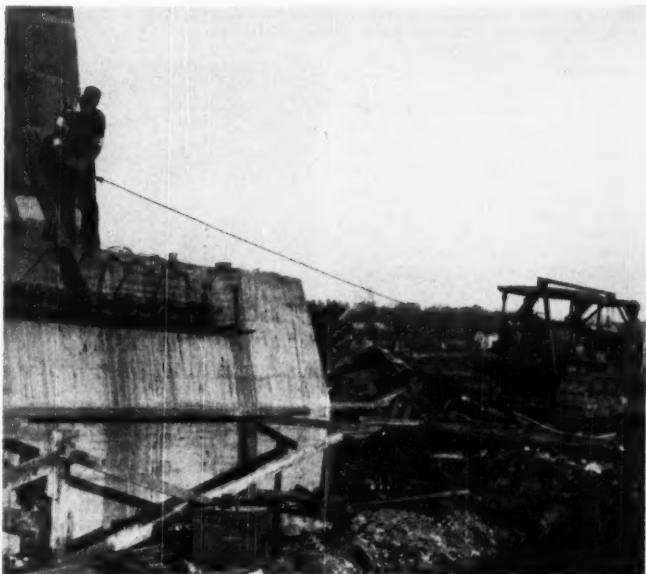


...BOLTS WERE PRESTRESSED in 20,000-lb. increments to total of 60 tons. Setup shown has 12-to-1 advantage and torque wrench on small wheel governed laying-up stages with nuts well-lubricated in heavy graphite and oil mixture. For final tightening to 6,100 ft. lb., equivalent to 120,000-lb. stress...

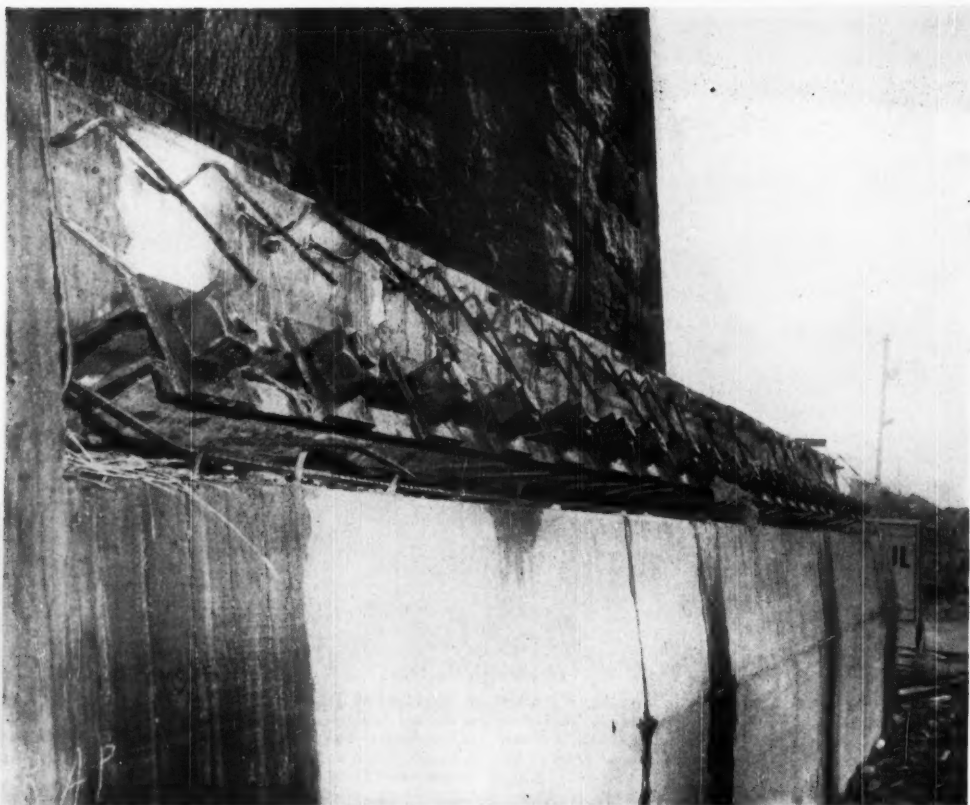
THREE-INCH SQUARE RODS weren't the only things highly stressed on the raceway for the Holyoke Water Power Co. in Holyoke, Mass. So were the nerves of the contractor's men who worked with one eye on the bridge piers and rods, the other on the dam crest and weather reports affecting the Connecticut River.

Taking advantage of the continued summer drought and dry river bed, Daniel O'Connell's Sons Inc. of Holyoke dug out a raceway through rock and earth without the usual cofferdam protection. Starting with a deep 40-ft. cut to provide an extra 20-ft. head for a 15,000-kw. hydro-electric plant, the 2,800-ft. raceway is designed to run between two granite-faced piers on a county bridge a few hundred yards downstream. But the piers had to be supported before the cut could be made.

Jackson & Moreland, Engineers of Boston and New York, designed a novel underpinning which started when Raymond Concrete Pile Co. sank on each side of the two piers four 5 ft. 6-in dia. concrete caissons which were belled out to



... POWER WAS SUPPLIED by tractor winch with wire rope connected through dynamometer to 6-ft. wrench arm. Readings were taken with wrench at right angles to line pull. Bolt stress was checked and steelwork wire-brushed before final incasement in concrete. Ends were poured separately, completely encircling piers with concrete.



STEEL PLATE WASHERS $9\frac{1}{2} \times 9\frac{1}{2} \times 1$ in. bear on two 9-in. continuous channels back to back. With piers thus supported, raceway was cut

through between them and lined with 3-ft. thick granite blocks for riprap on sloping sides.

9 ft. 6-in. dia. on hard gravel 15 ft. down.

Next, a bank of 23 holes was drilled through the piers, 3-in. square curved rods were inserted and pressure grouted, beams were formed and poured inclosing the rods and sitting on the caissons, and finally the rods were prestressed in 20,000-lb. increments to a total pull of 60 tons. The prestressing was accomplished in two novel methods as shown in the pictures; one with torque wrench and 12 to 1 gear ratio—the other with dynamometer on a 6-ft. wrench arm, with power from winch on a tractor.

With the piers thus secured, the raceway was completed and lined with riprap just before the first rainwater flow appeared over the dam. Among those breathing a sigh of relief with the satisfactory completion of the job were Robert E. Barrett, president of the Holyoke Water Power Co., and Bob Fischer, job superintendent for the O'Connell Co.



PART OF CAPABLE CREW for O'Connell outfit who beat weatherman: Franklin Morris, head timekeeper; Billy Johnson, engineer in charge of bridge; Bob Fischer, job superintendent; Ted Zavorsky, field engineer.

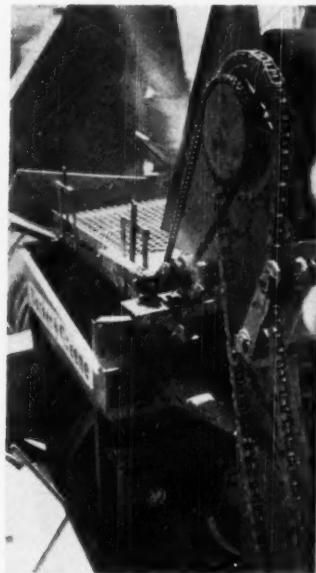
Readers' Picture Page

READERS ARE INVITED to send in photo contributions to this page each month. A minimum of \$5 will be paid for each picture published. Extra bonuses for outstanding shots may bring you \$10, \$15, or \$25.

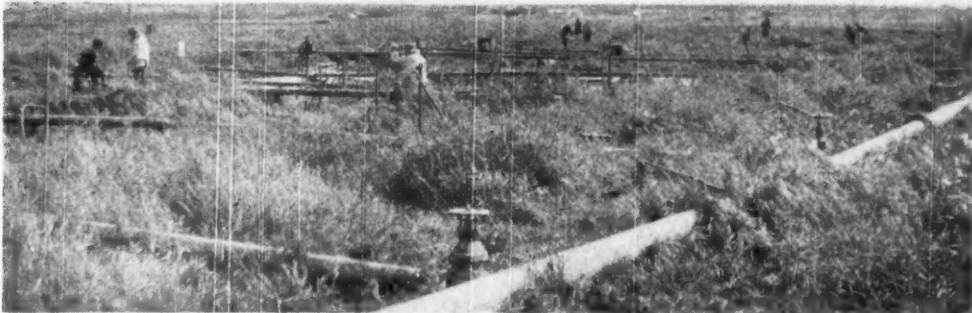
Send in your job photos to the Photo Editor, *Construction Methods and Equipment*, 330 W. 42nd St., New York 18, N.Y. Every effort will be made to return unacceptable prints, but their return cannot be guaranteed.



"THE CUPOLA MUST BE REMOVED." That was the decision of engineers after earthquake damage to the State Capitol at Olympia, Wash. To remove the 100 tons of stone lest it come crashing down through the building, this steep cable tramway was set up from the ground to the top of the dome and the 150 pieces were removed safely. Cupola was not rebuilt. Contractor was General Construction Co. of Seattle.—Photo earns bonus of \$25 for D. R. MacPherson of 503 E. 26th St., Tacoma, Wash.

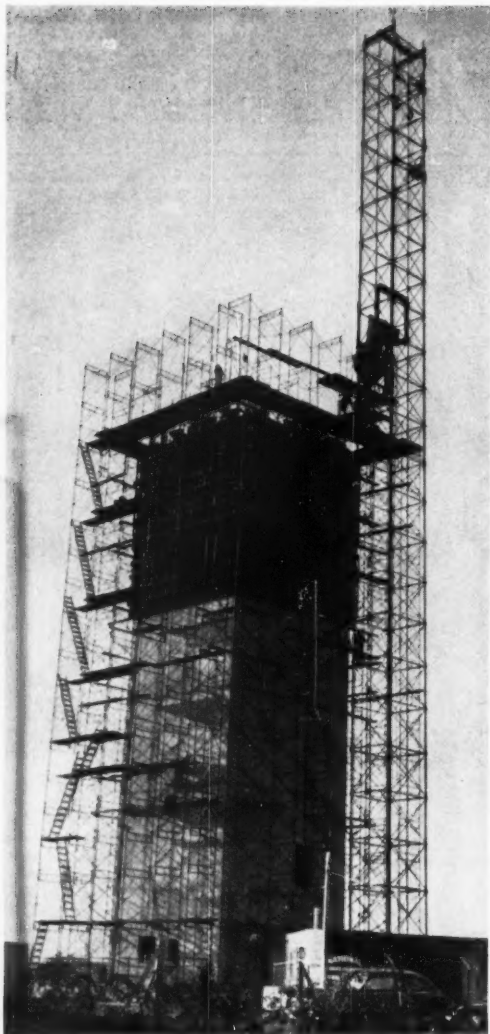


SCALPING SCREEN ATTACHMENT shown was installed on small Barber-Greene maintenance continuous hot-mix plant when paving brick passed into machine and did considerable damage to aggregate feeder track from hot bin and aggregate feeder gate. The 1 1/2-in. screen is actuated by arm offset on small sprocket and driven by chain from sprocket attached to cold elevator bucket wheel. Any oversize material drops off screen into chute. Bonus of \$15 goes to J. D. Reese, Asphalt Sales Dept. of The Texas Company in Denver, Colo. Screen designed by E. C. Simmons, Lamar, Colo.

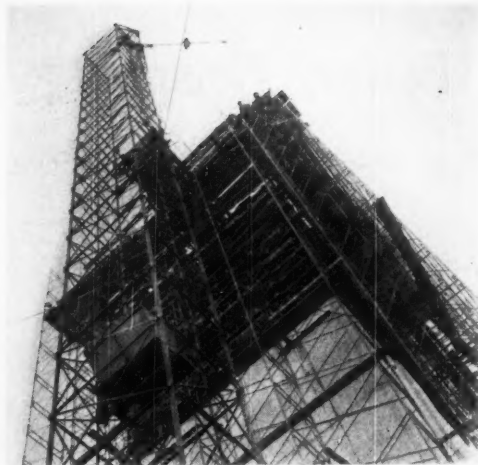


BY USING WELL POINTS in reverse, native Eskimos from Nome, Alaska proceed with ground thawing operations ahead of gold dredging crews. Water from mountain streams, although very cold, will thaw permanently frozen ground, which remains that

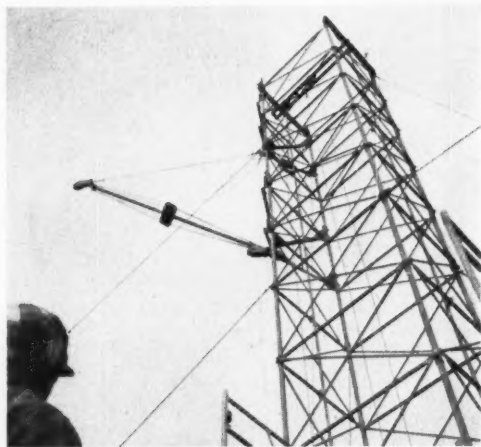
way for several years with exception of first few feet under surface. Captain Frank E. Harvey, C.E., of 215 E. Buffalo St., Milwaukee, Wis. receives \$10 bonus for photo showing work being done for U. S. Smelting, Refining & Mining Co.



26-FT. SQUARE CONCRETE BUILDING, for television relay, grows $14\frac{1}{2}$ ft. every 6 days inside of conventional fixed forms. This one near Lorain, Ohio, will be 130 ft. high.



WORM'S EYE VIEW of $\frac{3}{4}$ -yd. concrete skip going up to the 87-ft. level. Materials tower extending 158 ft. up into the wide blue vonder is anchored four ways with 16 cables, while tubular scaffolding is securely tied to anchor-cone nuts embedded in the concrete—two of several safety features of the job.



CHICAGO BOOM, anchored near top of materials tower and rigged with $\frac{1}{2}$ -in. cable running to stationary hoist on ground, makes fast work of hoisting scaffolding frames and other materials.

Fixed Forms for Tall Television Relay Buildings

FIXED-FORMS VERSUS SLIDING FORMS is a moot question in the construction of tall concrete buildings. Both methods have their advantages, yet each has its staunch advocates among building contractors.

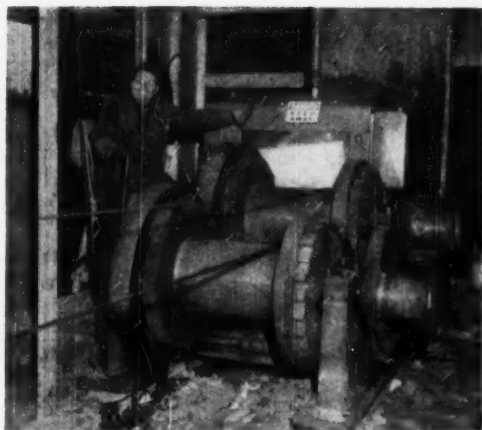
For example, of five contracting companies now constructing 31 reinforced concrete radio relay buildings for The American Telephone and Telegraph Co. between New York City and Chicago, three are using fixed forms to build 20 of the buildings, while two are using sliding forms on the other 11.

The buildings are 26 ft. square and from 60 to 200 ft. high. Only one 6-in. interior wall, few outside windows, and virtually no architectural embellishments make them a natural for efficient construction by

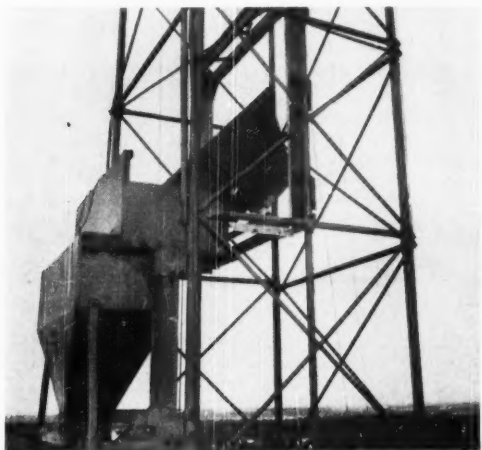
SEQUENCE OF PLACING CONCRETE:



1 SMITH 2½-YD. TRANSIT MIXER, on Mack truck chassis, delivers ready-mixed concrete to job. Safety wire mesh inclosing three sides of materials tower prevents careless workmen from walking beneath concrete skip. Hopper man is only one to signal "up" to hoisting engineer on . . .



2 ...TWIN DISK-CLUTCH Thomas hoist, powered by LeRoi gasoline engine. Double drums run concrete skip and Chicago boom line. Operator Fred Spuhler relies on painted marks on hoisting cables, rather than hand or bell signals, to tell him when load has reached working platform.



3 CONCRETE SKIP automatically trips into hopper mounted at convenient height above pouring platform. Hoisting speed is reduced to "slow" about 5 ft. below dumping point to insure easy transfer from bucket to hopper.



4 PNEUMATIC-TIRED Jackson buggies deliver concrete to forms, operating on solid plank runways supported by surrounding tubular scaffolding which is kept at least 10 ft. above runways to form safety rail for workmen.

either the fixed-form or slipform method. Outside walls are 12 in. and 16 in. thick.

Their purpose is to receive, amplify and transmit microwaves of super-high frequencies—primarily for television and radio relay—on to the next station. Each building supports either two or four big horn-shaped directional antennas on the roof, while five intermediate floors carry storage batteries and other operational equipment.

The National Concrete Fireproofing Co., Cleveland, Ohio, is building 20 of these buildings, all by the fixed-form method. Four are near Cincinnati and 16 are on the New York-Chicago route in Pennsylvania, Ohio and Indiana.

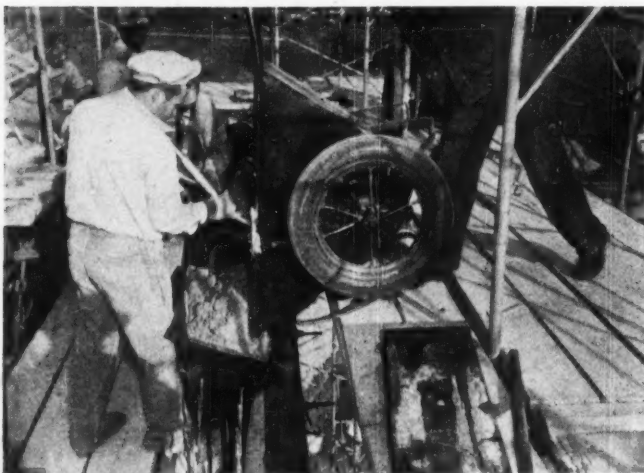
Typical fixed-form methods employed by this company are shown in the accompanying photos of the 130-ft. high building near Lorain, Ohio. This job, like all the others, was set up for economy of construction, with particular emphasis on safety.

At the start of the Lorain job, using a green crew, one 14½-ft. lift was poured every fifth working day. But as the crews caught on to the work, this was cut to a 4 work-day pouring cycle—representing a 20-percent increase in productivity.

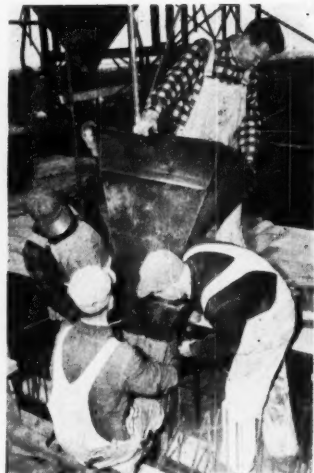
The average crew totals 35. It includes a construction superintendent, three foremen, one office clerk, 13 carpenters, 11 laborers, five iron workers, and a hoisting engineer.

(Continued on next page)

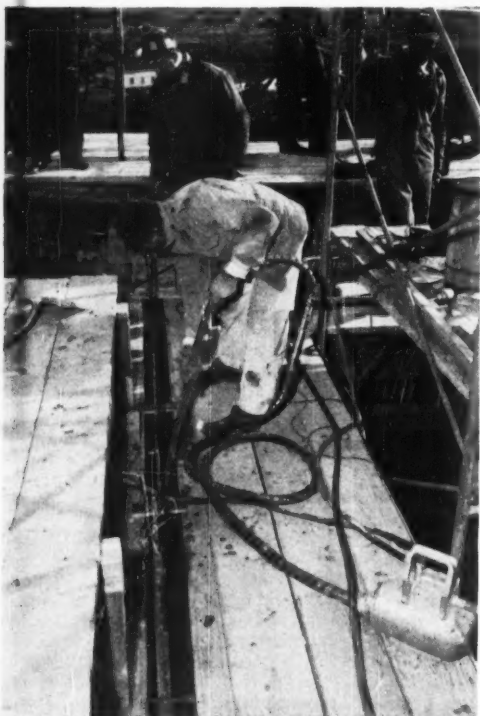
SEQUENCE OF PLACING CONCRETE ... Continued



5 CONCRETE BUGGIES dump directly into flanged pouring hoppers which taper into 5x12-in. elephant trunks and to within 3 ft. of previously placed concrete. If line gets clogged, it is quickly cleared by dropping a 3-in. vibrator into it. Reinforcing is checked as pour proceeds.



6 POURING-HOPPER is lifted and 3-ft. trunk sections are removed as the 14½-ft. high sections of wall forms are progressively filled with concrete. Twelve pouring-hoppers spotted around wall eliminate any bottleneck by six concrete buggies and reduce amount of vibration needed to keep top of pour level.



7 MASTER VIBRATORS prevent honeycomb even in 6-in. dividing wall. Outside walls are 12 in. thick. Concrete slump is held to about 3 in. to reduce bleeding of concrete and to permit early removal of forms.

Four-Day Pouring Cycle

This is the sequence of job operations using two sets of forms—one set forming a support for the other:

On the first day following completion of a pour, the inside forms are broken loose, cleaned, oiled, raised and anchored on top of the second set. At the same time the iron workers are setting reinforcing steel. Removable sections in the interior forms permit them to swing clear of the upper forms. On the second day the rest of the reinforcing steel is set in place, while the carpenters insert the tierods and start raising the outside forms.

The outside forms are raised and set in place on the third day, and all tierods are adjusted. Forms are trued up and grade templates are set the morning of the fourth day. Concrete placement begins about 9:30 a.m. and is completed in 7 hr. Iron workers set scaffolding during concrete placement.

The heavy panel-forms were made up in sections 4 ft. wide by 14½ ft. high. The sections are held together in the completed panel with steel wedges and steel pins. Nails were not used as they would tend to work loose, permitting the forms to lengthen or bulge.

The forms are raised with two hand winches, one at each end of the 24-ft. and 26-ft. panels. The winches are hung from overhead jacking beams supported on the tubular scaffolding. They engage a 2x10-in. plank lag-screwed flat against the 2x4-in. studs. The 2x6-in. wales are banded with steel strips to keep them firmly in place when hoisting the forms.

The tubular scaffolding was set up 3 ft. outside of the concrete tower. Extender brackets on the inside legs of the framing support a working platform when pouring concrete. This same platform is used by the workmen when cleaning the forms.

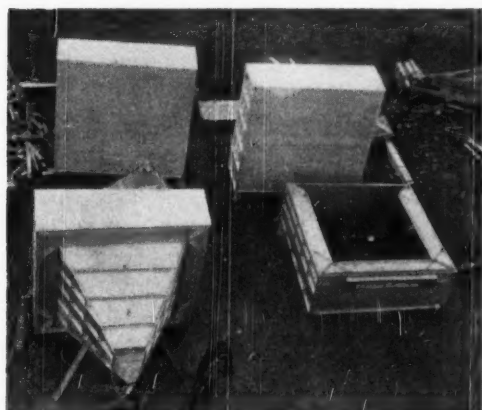
The forms are cleaned as they are raised. They are freed from the concrete and swung against the scaffolding to permit workmen to work between them and



BIG PANEL-FORMS, 26x14½ ft., first used on a television building near Cincinnati, were built rugged since they will be re-used nine times. They are made up of double 2x6-in. wales spaced 29 in. apart 2x4 studs at 16 in., faced with ¾-in. Harbord plywood, and anchored with ¾-in. Superior wall ties spaced 29 in. each way.



ENGINEER CARL STAKER measures volume of entrained air in concrete—limited to 3½ percent by volume—with a Zimmerman Air-Meter. Other field controls for high quality concrete include maximum slump of 4 in., and minimum compressive strength of 3,000 psi. at 28 days.



HERE'S WHY they're building the stations—to support these 4 big television horns (note comparative size of workman) to pick up, amplify and transmit super-high-frequency microwaves to next television building in radio-relay chain.



SUPERINTENDENT EMIL TAGLIAFERRI saves himself several trips up and down the 87 ft. of ladders each day by using a war surplus field telephone system connecting working platform at top of forms, with ground level.

the exposed concrete walls. The workmen start cleaning and oiling the forms at the top. After they have cleaned down about 2 ft., the forms are raised a corresponding height, and so on until the entire 14½-ft. panel has been finished ready to be set in place for the next pour.

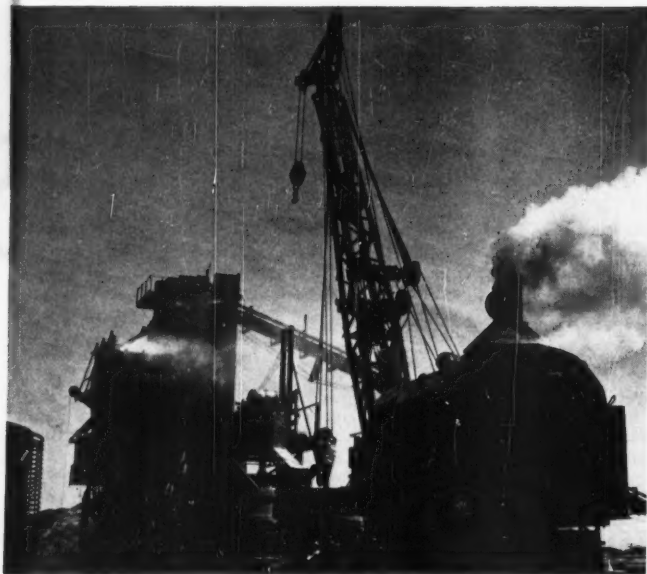
There are two sets of scaffolding—one completely surrounding the tower which supports a planked runway for the concrete buggies, and one inside the main portion of the building, also planked over. The stairwell is covered at the top of the forms, slung from a hanging scaffold by two sets of block-and-tackle.

Upon completion of the shell and interior dividing wall, the interior scaffolding will be dismantled down to a point just below the first floor power room, which is about 75 ft. above the ground. It will support this floor during concrete placement. The other three floors at 14½-ft. intervals, and the 18-in. reinforced concrete roof will be supported on forms shored from floor to floor.

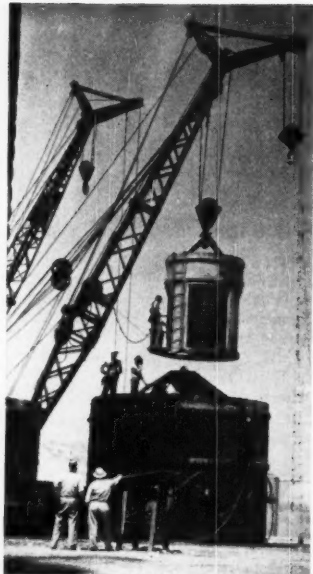
The higher the tower grows, the more attention is paid to safety. In addition to the safety precautions shown in the accompanying photos, one man has the

(Continued on page 60)

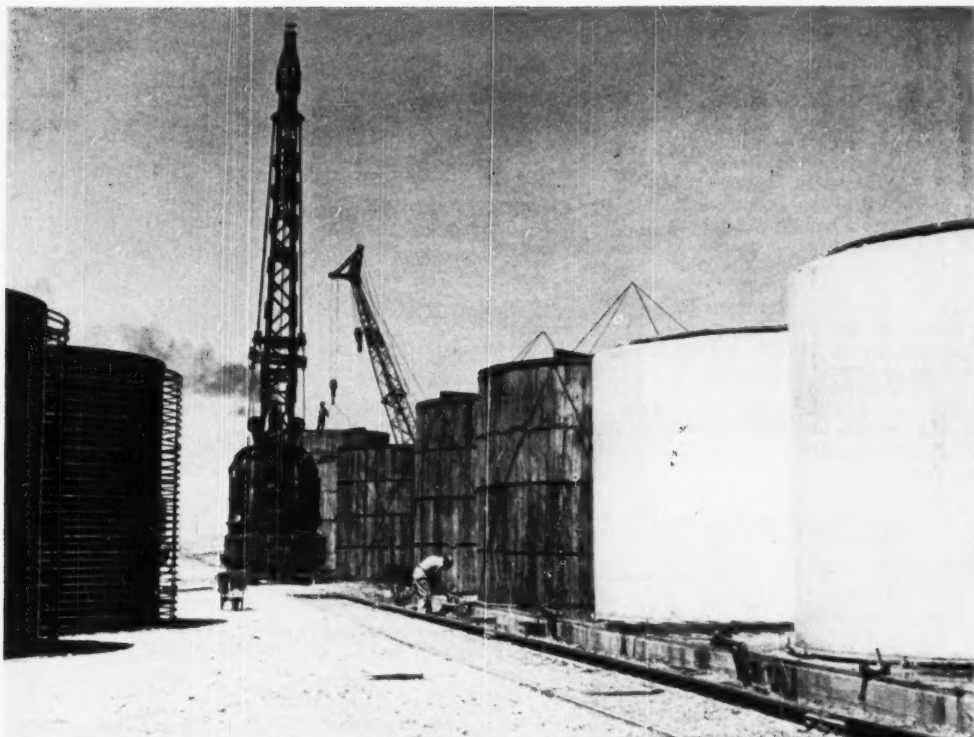
World's Largest Precast Pipe



CONCRETE IS BATCHED, poured into 8-yd. buckets, and carried along tracks by railroad steamer to line of 15-ft. dia. pipe molds.



Each 15-in. thick, 12-ft. long, 60-ton section uses 28 yd. of concrete made from Permanente cement.



WOODEN FORMS are placed inside and outside concrete pipe curing is obtained with 120 to 140 lb. of steam pressure for 72 hr. with 1-ft. space for steam curing. Equivalent of 28 days open air. Note large reinforcing around inner shell at left.

FORTY-SIX HUNDRED cubic feet a second—that's a lot of water and it takes a mighty big set of pipes to handle it. But that's the capacity of the three 15-ft. precast concrete tubes, said to be the world's largest, being made and placed in the Delta-Mendota Canal as another step in the irrigation of California's vast Central Valley desert area.

Near Tracy, Calif., surplus waters from the Sacramento River will be picked up, lifted 200 ft. by electrically-driven pumps, poured into a man-made river and carried 120 mi. along the San Joaquin Valley's west side for irrigation purposes. The Tracy pumping station, now under construction, will use power from Shasta Dam to boost a daily flow of 397,440,000 cu. ft. of water into the San Joaquin Valley through the precast concrete pipe lines.

Each section of pipe is 15 in. thick, is 12 ft. long, needs 28 yd. of concrete and weighs 60 tons. United Concrete Pipe Corporation
(Continued on next page)



PRECAST PIPES RUN 1,000 ft. uphill and will each carry 1,533 cfs. from pumping plant at Tracy, Calif. Joining with monolithic pipe sections already poured in place, the water will continue through this . . .

will run three tubes from the pumping plant 3,000 ft. uphill to the monolithic cast pipe already constructed.

United made up the steel shells and pipe-making machinery in their Los Angeles yards and shipped them by rail and truck to Tracy. There a batch plant makes the concrete from Permanente cement, a crane pours the pipe sections with an 8-yd. bucket, and they are steam cured for 72 hr. The job will take 21,000 yd. of concrete and will cost more than \$2½-million. Other contractors on the entire canal job are Stolte Inc., Duncanson-Harrelson and Ralph A. Bell. All work together, known as SUHB Companies.



Photos by Jack Wilkes
Permanente Cement Co.

... MAN-MADE RIVER BED for a 120-mi. run through Central Valley. En route diversion will be made to irrigate hitherto arid farmlands. First gush of water is expected in spring of 1950.

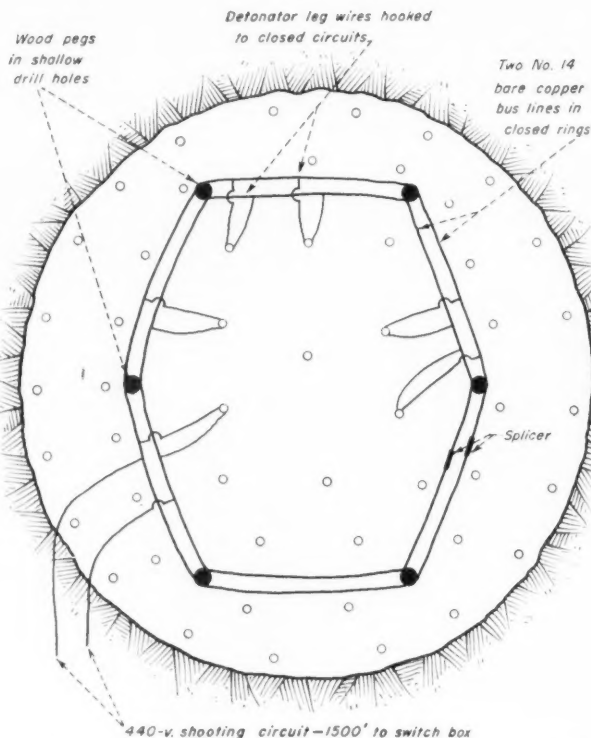
Foolproof Tunnel Blasting Hookup

Misfires Eliminated on Boston Job

MISFIRES—bane of tunnel driving—have been eliminated by a simple blasting hookup devised and used for years without a mishap by Charles Kelly, veteran tunnel superintendent now with B. Perini & Sons on the Boston water tunnel project. Charlie claims misfires are generally caused by additional breaks in the customary open-end bus lines to which the detonator leg wires are attached.

Therefore, as a safety precaution, he closes the bus lines of No. 14 bare copper wires into two separate rings attached to opposite sides of big wooden pegs driven into shallow drill holes. Then the leg wires of the electric caps are hooked up to the bus circuits in normal fashion. A 440-v. shooting circuit, tied into the bus lines, insures plenty of power to fire the round. As another safety measure, Charlie keeps the shooting switch at least 1,500 ft. from the shot.

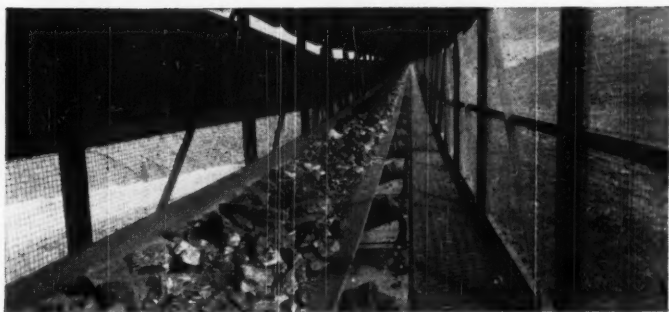
The closed rings, Charlie points out, still maintain the circuit even if the bus lines are broken once. On an open circuit, a bus break kills that part of the series beyond the interruption, resulting in misfires. It makes sense to us.



CLOSED BUS LINES in two complete rings prevent misfires in tunnel blasting circuits. All hole hookups not shown.

For heavy-duty conveyors...

IT'S TIMKEN...



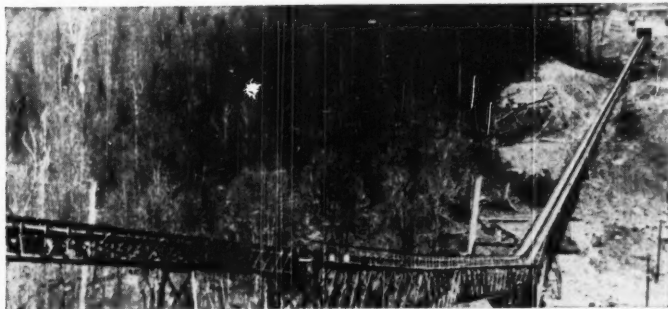
FOR over 25 years almost every heavy-duty conveyor — like most heavy duty equipment throughout industry — has relied on Timken® tapered roller bearings for long life and trouble-free performance. For example, The Blue Diamond Coal Company installed this Stephens-Adamson belt conveyor with 476 Timken bearing equipped idlers in 1930 —and at last report they haven't had to replace a bearing yet!

AND TIMKEN...



TIMKEN bearings are first choice for tough conveyor jobs like this Jeffrey Belt Conveyor installation used for long-distance sand hauling. Timken bearings provide maximum capacity for radial and thrust loads in any combination. Idlers turn freely, belt wear is reduced to a minimum. Effective seals keep lubricant in, dirt and moisture out. Lubrication and maintenance time is negligible.

AND TIMKEN® AGAIN!



AND here's one of the latest Timken-equipped jobs — a 1,485 foot Robins conveyor at The Gauley Mountain Coal Company's Williams River Mine. It's another addition to the thousands of miles of heavy-duty conveyors that roll on Timken bearings. There's no other bearing with so much to offer, no other bearing so fully proved. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

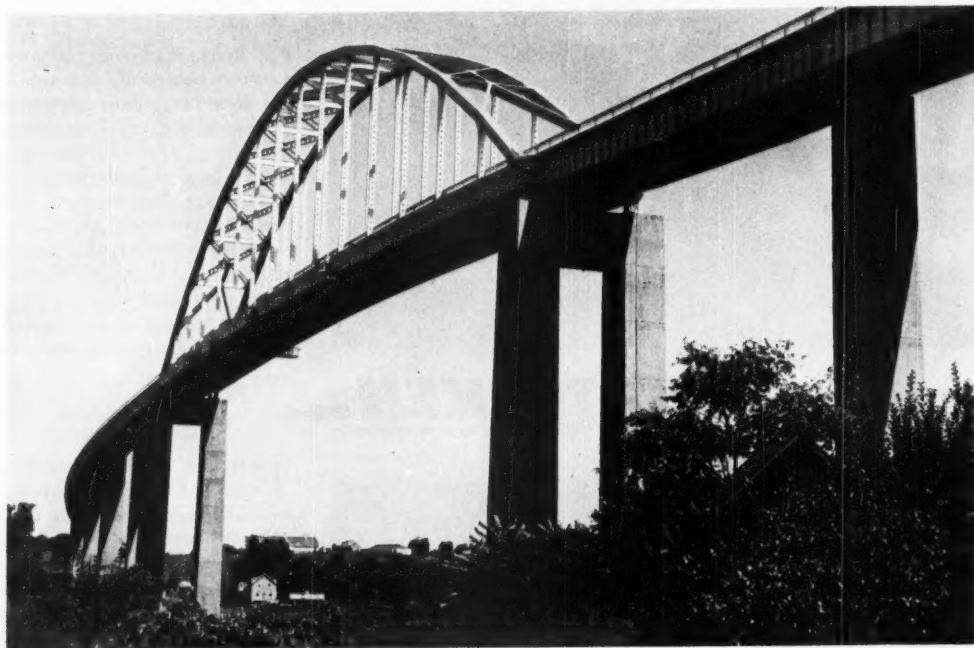
*Whenever the going's tough
industry turns to*

TIMKEN
TRADE MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS



NOT JUST A BALL  NOT JUST A ROLLER  THE TIMKEN TAPERED ROLLER  BEARING TAKES RADIAL  AND THRUST  LOADS OR ANY COMBINATION 

THIS MONTH'S NEWS REEL



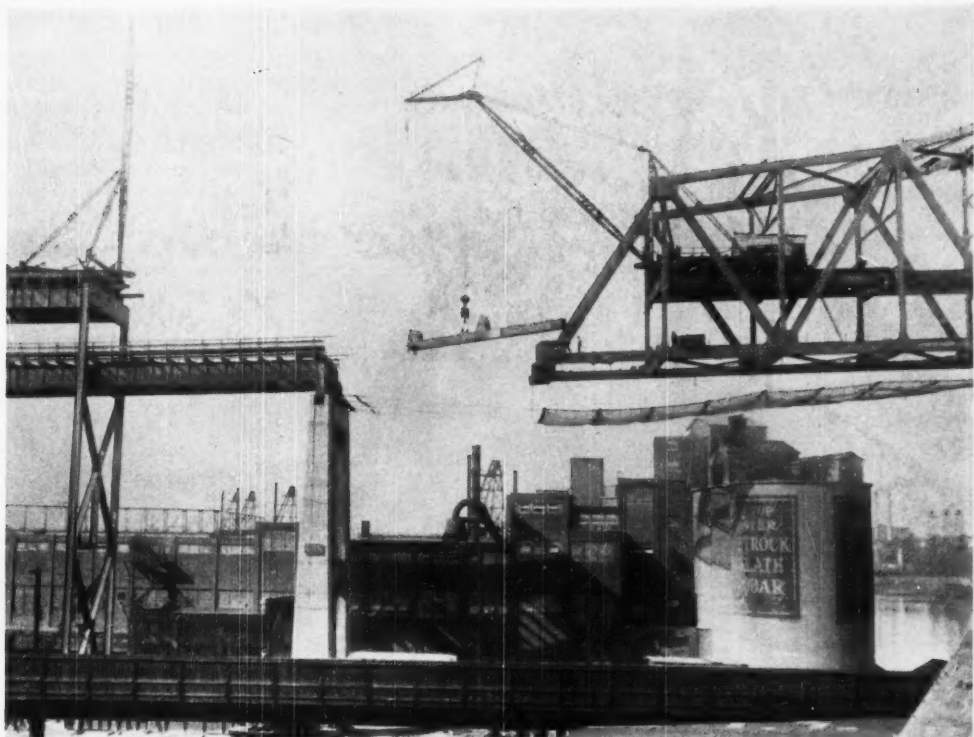
NEW HIGH-LEVEL FIXED BRIDGE over Chesapeake & Delaware Canal at Chesapeake City, Md., was opened to traffic recently by Army Engineers of Philadelphia District. Started in 1946 two-lane

highway bridge erected by American Bridge Co. on long tapered concrete columns is nearly 4,000 ft. long with 135-ft. clearance over canal.—Corps of Engineers Photo.



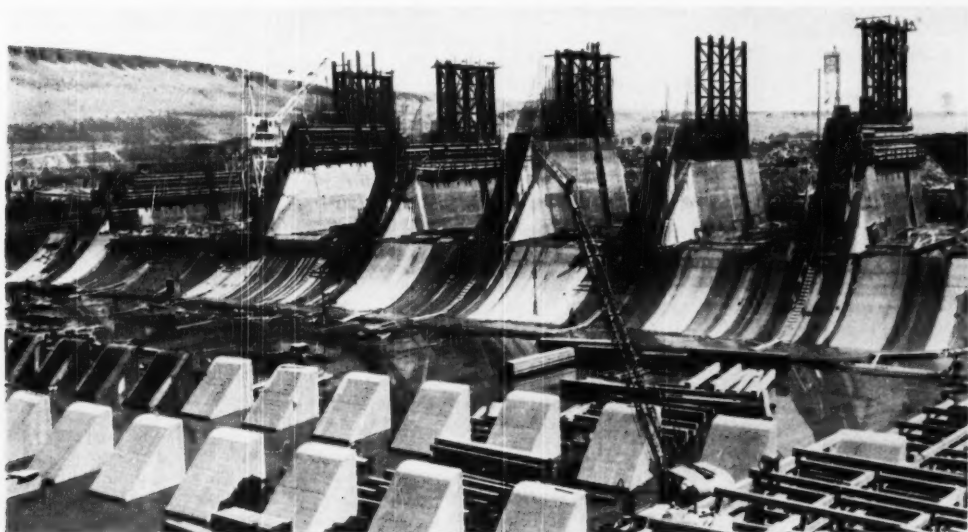
VETERANS' HOSPITAL at Albany, N. Y., 10-story cruciform structure with 1,000-bed capacity, is Corps of Engineers (New York District) project for which steelwork was erected by Harris Structural Steel Co. of New York City. There are about 16 acres of floor space in

the \$16,000,000 main hospital building, located on a 20-acre plot 1½ mi. from the state capitol. General contractor is Ring Construction Co., New York City.—Acme Photo.



CONNECTING LINK is swung into place on Mystic River Bridge connecting Chelsea and Charlestown section of Boston. Closing piece marks nearing of completion of steel erection by American Bridge Co. Double-decked toll bridge will provide quick route from

Boston to vital route U. S. No. 1 by eliminating bottleneck approaches and swing-draw bridge. Note safety net slung under open steelwork. \$27 million structure has 800-ft. main center span and two cantilevered spans of 362 ft. each.—U. S. Steel photo.



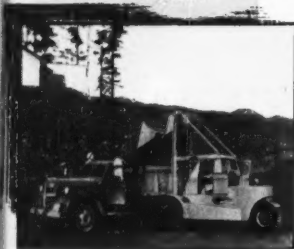
McNARY DAM, Army Engineer Corps navigation and power project on Columbia River near Umatilla, Ore., starts to rise at cofferdam site between Washington and Oregon. Structures for first stage of job, including spillway dam, navigation locks and fishways were

bid in for \$21,648,763 by group of three Portland, Ore., contractors, Guy F. Atkinson Co., Ostrander Construction Co. and J. M. Jones Construction Co. Dam, 8,725 ft. long, will include 3,082 ft. of concrete and remainder earth.—Wide World Photo.

VERSATILE PROFIT-MAKER



The New SCOOP MODEL "C"



Loading is easier, more practical.
High ground clearance and
shorter turning radius.



Lifts 4,000 pounds. Hoisting
power is taken from the front of
the engine to permit uninterrupted hoisting.

DIESEL POWER AVAILABLE



LIFT FORK



CRANE BOOM



CONCRETE HOPPER



FERTILIZER FORK

One machine—6 jobs

Built at the request of contractors, the Wagnermobile Scoop Model "C" saves time, labor costs by its many efficient uses.

- Transports, elevates and pours concrete.
- Shovels and loads dirt, etc.
- Lifts and stacks lumber and other materials.
- Handles fertilizer, hay and straw.
- Lifts heavy equipment.
- Reaches extra height.

Attachments:

- $\frac{3}{4}$ cubic yard concrete hopper.
- Scoops in 5 sizes.
- Lift fork with 2, 3 or 4 prongs.
- Special fork with tines for fertilizer, or hay.
- Crane boom.
- Track extensions up to a total of 26 ft.

These six attachments, quickly changed mean profit on the job. Wagnermobile Scoop helps you complete contracts faster.

Hydraulic controls.

- Power steering—maneuverability.
- Planetary drive—more power.
- 4 speeds forward, 4 speeds reverse.

We reserve the right to make improvements in design and specifications without notice.

MIXERMOBILE MANUFACTURERS



6855 N. E. HALSEY STREET, PORTLAND 16, OREGON

Television Buildings

(Continued from page 53)

responsibility of inspecting each planking timber as it is raised to a new position.

Fixed ladders are lashed inside the scaffolding, with a landing every two frames (10 ft. 4 in.). Workmen are not permitted to climb up or down the scaffolding, but must use the ladders at all times. And two red obstruction



WHEN YOU'RE up on top of forms you don't crawl down for a drink—you get one from this 3-gal. Lily-Tulip water container, dubbed "Gunga Din" after Kipling's Hindu water boy who died for his master.

lights are mounted on top of the materials tower to warn aircraft.

The tubular scaffolding, involving 675 double frames, 5 ft. 2 in. high, was rented from Automatic Devices, St. Louis. The 158-ft. materials tower, complete with concrete skip and receiving hopper for discharge into the concrete buggies at the top of the forms, was rented from the Dravo-Doyle Co., Pittsburgh.

Upon completion of concreting operations, all cone-holes for tie-rods will be plugged, construction joints will be rubbed, and the entire exterior of the tower will be given a thin cork-float finish of mortar to fill any air-holes and surface-checks.

E. K. A. Gundersen, Jr. is vice-president in charge of engineering, for the National Concrete Fireproofing Co. and Foster McClintock is general superintendent in charge of all 20 television buildings. Field inspection is by the Osborn Engineering Co., Cleveland. Associated architectural firms who designed the towers are Rose and Rose, A. Gordon Lorimer, and Roberts & Schaefer.

OWEN

assures

A MOUTHFUL AT EVERY BITE

EXCLUSIVE FEATURES

EXPERT DESIGN

**SUPERIOR
CONSTRUCTION**

in excavation

dredging

trenching

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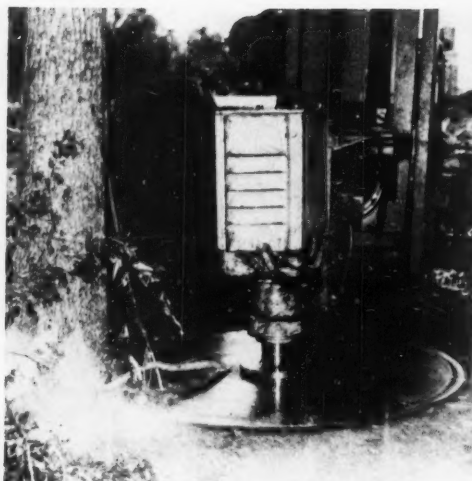
The OWEN BUCKET Co.

6020 Breakwater Ave., Cleveland, Ohio

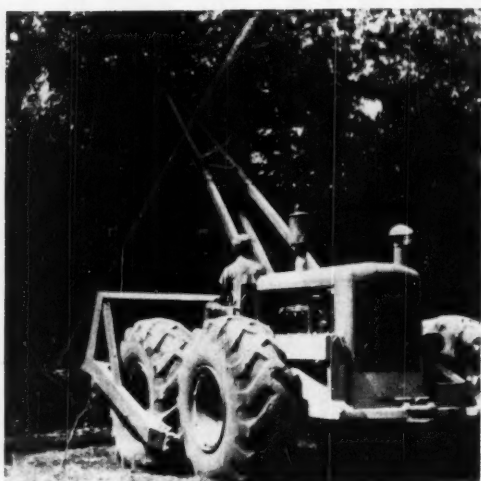
Branches: New York, Chicago

Philadelphia, Berkeley, Calif.

BUCKETS



Saw blade doesn't bind because...



Attachment bends tree. It's why...

Saw-Dozer Teams Clear Reservoir Fast

MARSHY GROUND — dense underbrush—plenty of big trees: Any one of these will complicate a land-clearing project. Combine them all, and your job can be a killer.

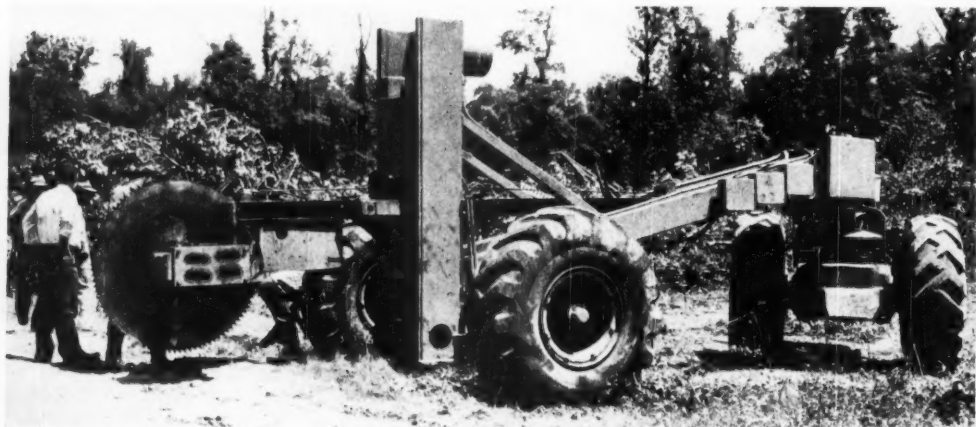
However, when one such nasty project came up near Longview, Tex., R. G. LeTourneau Inc. took the contract at \$85 per acre in order to prove up some new land-clearing equipment. Worked out

fine, too. With two novel saws and two specially-equipped 'dozers, they cleared 930 acres in only 70 days.

The clearing was for Cherokee Reservoir, which will supply water to the city of Longview and to a new steam plant for Southwestern Gas & Electric. Most of the acreage was overflow land around a sizeable bayou. Plentiful moisture made the underbrush thick and the

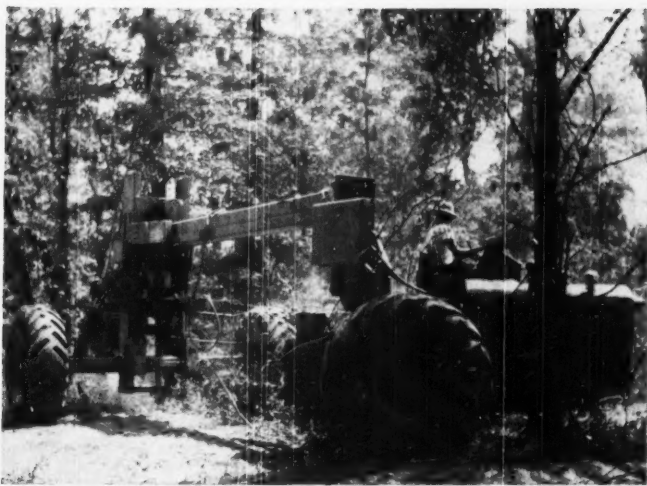
ground soft. Trees were predominantly hardwood with a scattering of pine. They ranged from 10- to 30-in. dia. (most were about 15-in.) and averaged 150 trees to the acre. All had to be cut not more than 2 ft. above ground.

Two Tournasaw-Touradozer teams were sent out to slice off brush and timber. Mounted on large rubber tires, the rigs had good flotation in the boggy ground.



7½-TON ELECTRIC SAW is key rig on Texas land-clearing project. Blade operates in any position from horizontal to vertical; can be

moved up, down, sideways or longitudinally. Peripheral speed of 66-in. blade is 22 ft. per sec.



ANOTHER VERSION of electric saw backs through underbrush to reach big trees. Le Tournau took on clearing job as proving-ground for new machines. Power for saw rig comes from generator on prime mover.

The Tournasaw is trailed behind a C-11 Tournapull and carries a 66-in. circular cutoff blade, electrically powered, that can make a 27-in. cut. The blade can be moved 54 in. vertically and 26 in. to each side. It can be shifted from 5 1/3 ft. to 15 ft. behind the saw carriage rear axle, and turned from horizontal to vertical in either direction, all by electric power. All saw movements are electrically controlled by the operator of the prime mover. Thus, he could trim and buck merchantable timber into practically any size after felling it.

Working with each saw was a Model C Tornadoizer with a 25-ft. long tripod boom welded to the right side of the blade. The boom projected forward and up, making an angle of 20 deg. with the horizontal when the blade was just clear of the ground. Two prongs—a bar at the tip and a bracket a

few feet down—extended transversely beyond the off side of the frame as a clamp to hold and guide the falling tree.

Here's the way the rigs cooperated: As the saw cut into a tree, the 'dozer operator, lifting his blade and attached boom, maneuvered so the upper part of the trunk was hooked between the boom's bar and bracket extensions. By applying pressure to the tree, he kept the saw from binding. And when the timber was cut through, he guided it safely to fall in a spot already cleared.

The teamwork paid off. Because the saw blade was never pinched, it cut at full efficiency. Because felled timber didn't interfere with later cuts, advance was rapid. The four machines dropped trees at the rate of four and five a minute and cleared up to 15 acres daily. Other equipment aided in brush clearing and clean up.

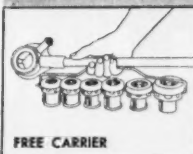
Navy Aids in Road Surveys

AS A RESULT of recent arrangements between Spencer Miller, Jr., New Jersey State Highway Commissioner, and officials of the Naval Air Station at Lakehurst, two blimps were used to conduct the first of several aerial surveys in that state's Orange County.

Five projects, current and pro-

posed, were studied at altitudes of 300 to 700 ft. from the hovering lighter-than-air craft. The commissioner was accompanied by several officials and declared that the new method was excellent for providing visual information on highway projects. Similar surveys are planned for the future.

Beaver



No. 3 Ratchet Threader For Pipe, Bolts, Conduit

Beaver No. 3 Ratchet Threader is a deluxe tool with fully-enclosed ratchet teeth that cannot get gummed-up or mutilated—thus eliminating the danger of serious accidents caused by ratchet slippage.

Die segments square in shape—no weak sections—are easily removable for sharpening and can be inverted for close threading. Ample openings between segments for oiling and chip clearance.

Diehead carrier free—enclosed metal tool-box available extra.

Beaver No. 3 threads Pipe, 1/4 to 1"; Bolts, 1/4 to 1"; Conduit, 1/2 to 1"; Brass Tubing, 3/4-20; 5/8 or 3/4-27 Thread. Also specials.

Write for complete new Catalog No. 49—free! It shows a complete line of hand tools, 1/2 to 12-inch; electric pipe & bolt machines, power drives, etc. Address Beaver Pipe Tools, Inc., 228-300 Dana Avenue, Warren, Ohio, U. S. A.

50 Years of Friendly Service

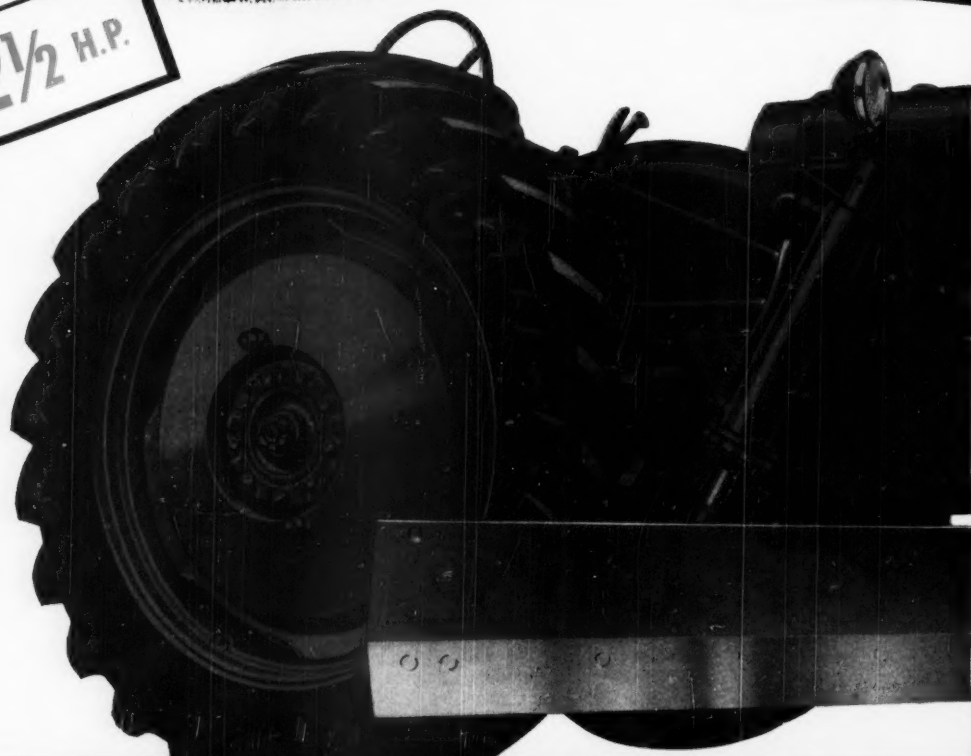
BEAVER

PIPE TOOLS

THE HUBER MAINTAINER

A 6000 LB.
with Calcium Chloride
in Rear Tires

42½ H.P.



SERVES AS A Grader, Berm Leveler, Road
Planer, Bulldozer, Lift Loader, Snow Plow,
Highway Mower, Broom, Patch Roller

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THE HUBER MANUFACTURING CO

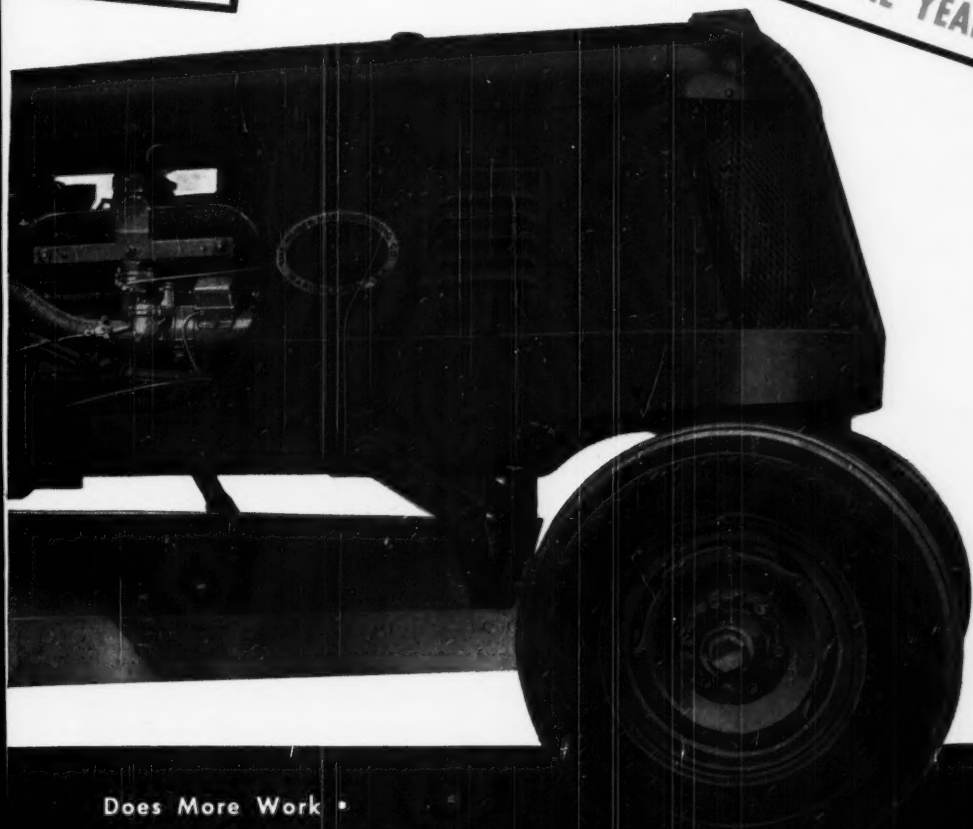
A BIG MACHINE

GRADER

Solution

9 MACHINES in ONE
with HUBER attachments

**BUSY EVERY MONTH
OF THE YEAR**



Does More Work •
Handles Bigger Variety
of Jobs • Costs Less to Buy •
Less Costly to Operate •
Gets around Like a Truck

or write for Bulletin M138

COMPANY • MARION, OHIO



Fork trucks carry pallets of gypsum block, making

Deliveries Direct to Bricklayers

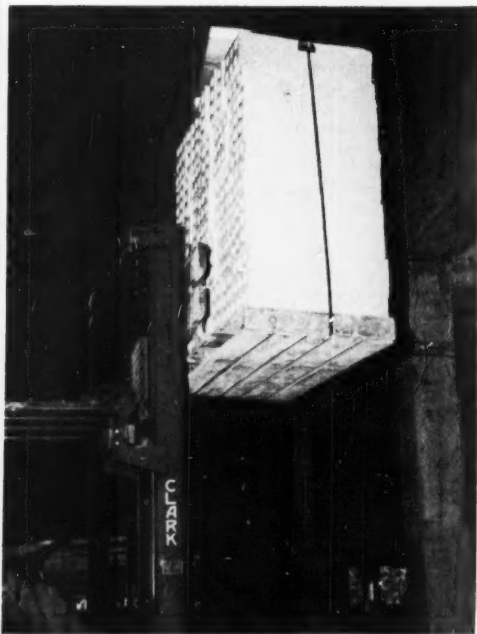


1 WATCHING SYSTEM of direct deliveries to bricklayers on scaffolds are Louis D'Alessio, brick foreman; I. Roy Psaty, president, Psaty & Fuhrman Inc.; and George Dunn, superintendent. After unloading delivery truck, larger Clark fork truck rehandles materials.

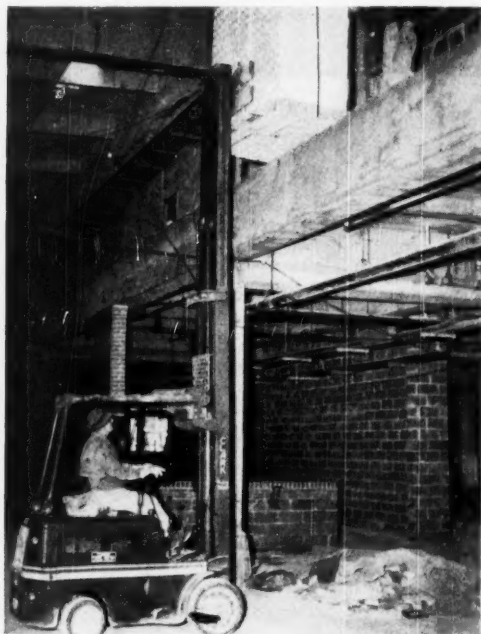
NO HANDS TOUCH the mortar and masonry units until they arrive right where the bricklayer is working on the East New York Bus Depot job. By having (1) mortar delivered ready mixed; (2) terra cotta, cinder block, brick and gypsum block banded on wooden pallets; and (3) Clark fork trucks to keep things going, Psaty-Atlas has struck a new pace in mechanized masonry handling and distribution.

The building job is a joint venture by Psaty & Fuhrman Inc. and Atlas Tile & Marble Works Inc., both of New York City, and called for installation of a concrete ramp from street level to the second floor. The mechanized materials handling plan included use of this ramp as soon as possible, so it was formed and poured along with the second floor and since then has been accommodating delivery trucks as well as the fork lifts.

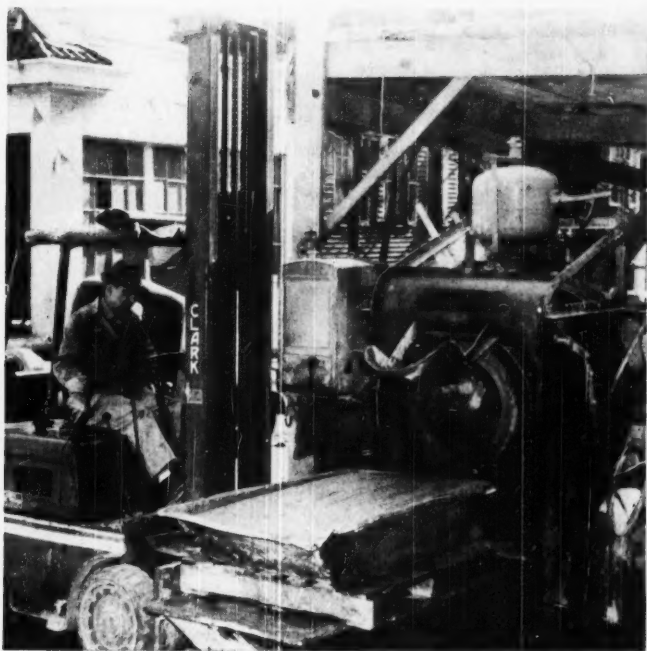
Building is being constructed for New York City Board of Transportation. George Dunn is project superintendent and Louis D'Alessio, brick foreman. Michael De Bellonia is operator of larger truck shown in the accompanying pictures.



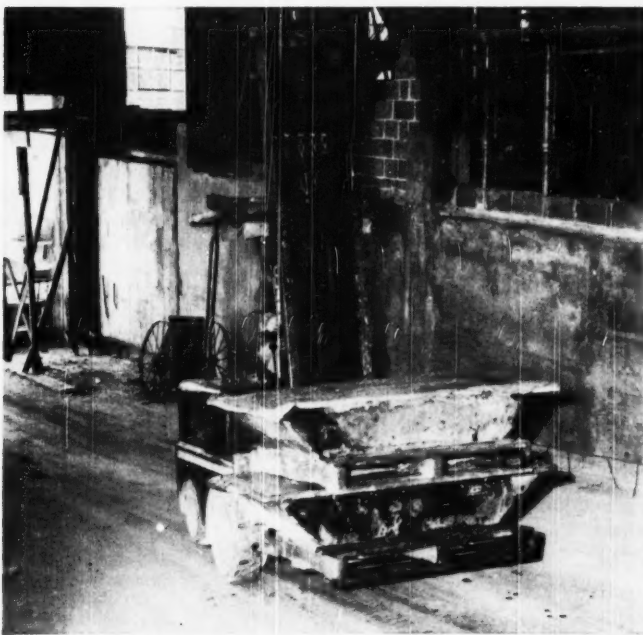
2 Banded pallet of 75 gypsum block is carried for delivery to mezzanine level where smaller fork lift will carry it on to laying-up locations. Here lift has reached normal jacking height and specially-built telescopic slide comes into play . . .



3 . . . TO HOIST 1-ton load 15 ft. 9 in. to mezzanine level. Brick, cinder block, terra cotta, mortar are all handled thus, saving all labor for actual tending. Psaty & Fuhrman Inc. and Atlas Tile & Marble Works Inc., both of N.Y. City, are joint contractors.



4 SAME FORK TRUCK takes on two mortar boxes with full 10-cu.ft., 1,100-lb. batch in each. Mortar is transit-mixed dry and made up just before actual use. Truck then proceeds . . .

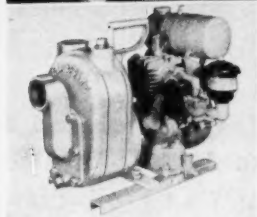
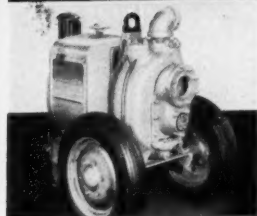
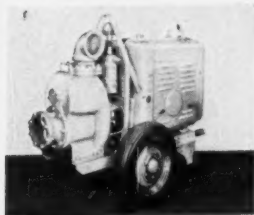


5 . . . UP PERMANENT CONCRETE RAMP to 2nd floor level. Top ceiling height of 23 ft. called for 17-ft. stagings plus 6-ft. headroom. Big lift was designed for this 17-ft. maximum hoisting job. Mechanized materials handling relieves much more labor for tending bricklayers and moving staging.

PUMP DESIGN *At it's Best*

**CMC DUAL
PRIME**

THE LAST WORD IN
PUMP DEPENDABILITY



● Unmatched self-priming speed is assured by *exclusive* twin jet construction.

● Extra air-handling ability gives dependable performance when ordinary centrifugal pumps become air bound and lose prime.

● Non-clogging, open thrash type impeller handles solids up to 1/4 intake size.

● CMC DUAL-PRIME pumps give top performance and maximum dependability even under the most adverse conditions.

Write today for latest illustrated catalog. CMC DUAL PRIME pumps are available in sizes from 1 1/2" to 10" — capacities from 3000 to 200,000 gallons per hour.

CONSTRUCTION

**MACHINERY
COMPANIES**

WATERLOO, IOWA



8
Why

Model
HD-10

86.63 drawbar hp.

Six speeds forward, to 6.03 m.p.h.; two reverse, to 4.15. Weight: 62" tread, 21,000 lbs.; 74" tread, 21,600 lbs. Available with large idler.

Let the Outstanding Advantages of These AHEAD-OF-THE-TIME Tractors Boost Your Production and Cut Your Costs...as They Have for Thousands of Owners

1 **1,000-HOUR LUBRICATION** of truck wheels, support rollers and idlers. You operate six months on a 40-hour week basis with just *one lubrication* . . . instead of daily, or even weekly, attention. Think what this means in labor and lubricant savings . . . and in working time gained! Think of the safety factor, too—no costly damage by greasing neglect.

2 **GENERAL MOTORS 2-CYCLE DIESEL ENGINE** Rugged, simple, economical, "hanging-on" power. Smooth—every down stroke a power stroke . . . less wear and tear on tractor and operator. Far less power loss than other engines at high altitudes.

3 **INTERCHANGEABLE ENGINE PARTS** Nearly all of the GM engine wearing parts are interchangeable with each of the GM engines on the various models of A-C tractors and motor graders—no matter the size. Lowers parts investment, simplifies maintenance for Allis-Chalmers fleet owners.

4 **INSTANT STARTING** GM 2-cycle diesel engines start as easily as your automobile . . . and they start and operate on *diesel fuel*. No need to let 'em idle during work-stop periods—no unnecessary engine wear or fuel waste.

Ask any owner...or arrange for a demonstration with your Allis-Chalmers dealer
...SEEING IS BELIEVING"

Big Reasons *they're so popular*



Model **HD-7**

60.10 drawbar hp.

Four speeds forward, to 5.00 m.p.h.;
reverse to 1.89. Weight: 52" tread,
13,830 lbs.; 63" tread, 14,000 lbs.
Available with large idler.

5 FAST MANEUVERING 2-cycle diesel tractors are well known for their fast-working ability — not only for quickly traveling from cut to fill, but for turning around instantly in their tracks . . . and for easy maneuvering in and around tight places — especially important on bulldozing. Time saved is money made!

6 PROPER BALANCE Weight, speed and power are positively balanced in A-C tractors, assuring top performance on every job — pulling, pushing, lifting.

7 OPERATOR COMFORT All these advantages mean operator satisfaction, too — resulting in more work done more easily. Besides — he has a big, wide, comfortable seat, cushioned back, arm rests, roomy platform, convenient controls, good vision.

8 MATCHED ALLIED EQUIPMENT Each Allied manufacturer, skilled in his own field, works in complete cooperation with Allis-Chalmers in designing and building auxiliary equipment.

ALLIS-CHALMERS

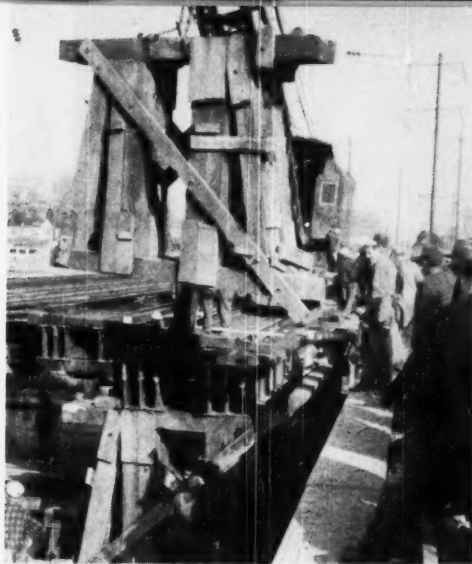
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Originator of the Torque Converter Tractor



New York-Washington mainline express roars past job site as...

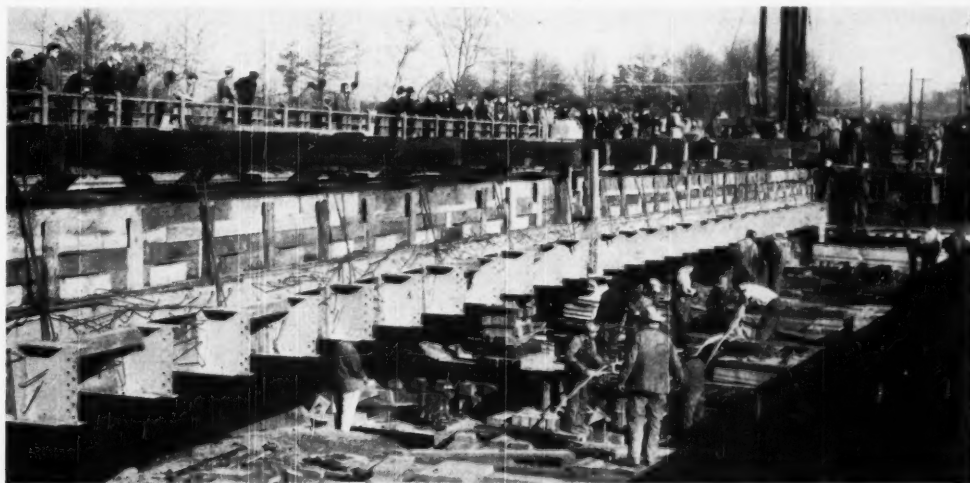
Pre-Assembled Bridge Rolls Into Place



1 UPPER HALF of double-deck cribbing is removed along with tracks, ties and temporary stringers made from groups of three 33-in. I-beams. Two-track section at right was rolled into place two weeks earlier.



2 WITH CRANES CLEAR of hole, roller arrangements on lower deck of cribbing are checked and jacks spotted. Since floor beams of inner track are to frame into angles on web of center girder...



3 ... EVERY OTHER ONE is supported during move by tierods bolted to cantilevered 12x14 timbers, which, in turn, are hooked around left-hand girder. This leaves only placement of one rail

for entire length of bridge and final ballasting of ties after move is completed. Hundreds of spectators gathered on new Lincoln Highway bridge, also part of contractor's work.

By JAMES M. CONNOLLY, Assistant Editor

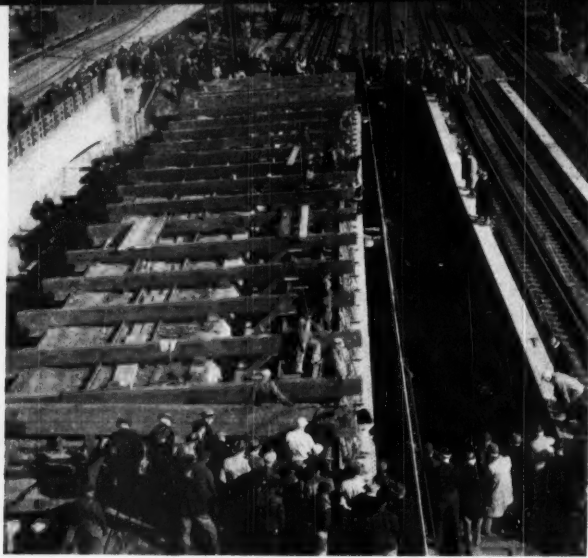
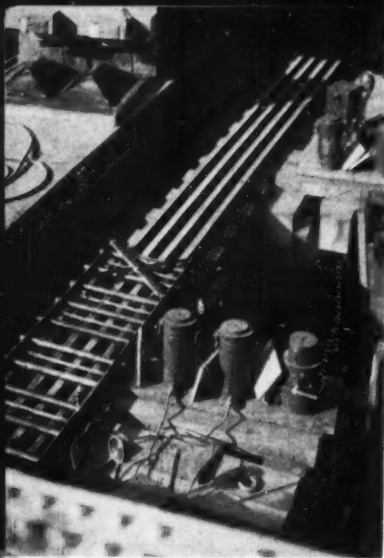
THE IMMOVABLE OBJECT on the extension of New Jersey's famous Route 4 was the high-speed four-track mainline of the Pennsylvania Railroad, running parallel to the new Lincoln highway in the town of Iselin.

Everyone knows you can't stop service on a mainline, so the only alternative was to burrow under it. After supporting a 200-ft. tempo-

rary trestle on double deck bents by briefly cutting out one track at a time, Brann and Stuart, contractors from Philadelphia, assembled the new bridge—one half on each side—and rolled the sections into place on center pier and end abutments.

First two-track section was rolled into place on Sunday, November 20; the second move, shown

in the accompanying photos, was completed two weeks later with no interruption of freight or passenger service. Design was handled jointly by engineers of Pennsylvania Railroad and New Jersey State Highway Department, whose Commissioner—Spencer Miller Jr.—let the contract with federal participation from the Bureau of Public Roads. (Continued on next page)



4 FIFTY-SIX ROLLERS are set on 1-ft. centers on each of four temporary bents. They are 1½ in. x 3 ft. long, and are sandwiched between four upper and four lower railroad rails for 25-ft. move. Center girder was first bolted to left half of bridge and floor beams fire-

proofed; then unfastened and riveted permanently to right-hand half of second concreting operation. Thus, floor beams cannot drift and proper alignment is assured. Bridge ready to roll at noon after 7-hr. preparation. Power supplied by four double-drum hoisting en-

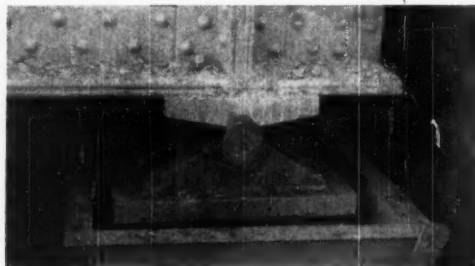
gines with lines reeved from one drum through two 5-gang blocks and back to second drum. Thus either drum may be used for pull. Occasional misalignment corrected by blocking near end and pulling easily at opposite end to return to parallel.



5 "EASY NOW!" says Bob McGilvra, superintendent for Brann and Stuart Co., and his assistant motions same to tagman for relay to four hoisting engineers. One or two more short pulls and bridge will be home. Bob is also chief engineer for company. As track crews ready rails and ballast...



6 ... JACKS ARE BOOSTED and cribbing removed for lowering into place. Note timbers wedged between girder flanges to prevent their bending at jacking point. Two-span girders sit down easily on...



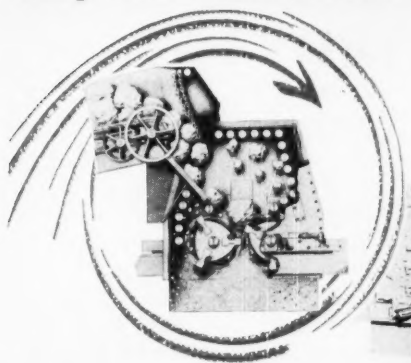
7 ... PIN SEATS, one on each abutment, and two on center pier. Preparations began at 5 a.m., bridge rolling took place at noon and first train rolled over irons at 3:30 p.m. Service uninterrupted and trains now running as usual—70 to 80 mph. Another challenging job well done and a tough problem solved.

Get 8" or 1 1/8" minus

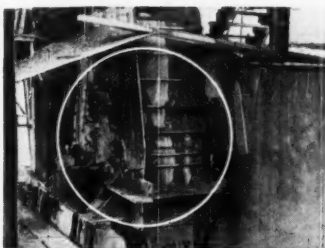
... with
Dual Impact Action

See how impellers in schematic drawing, rotating at speeds up to 1000 rpm, smash stone in *mid-air*. Three-way size-control assures production of sizes desired.

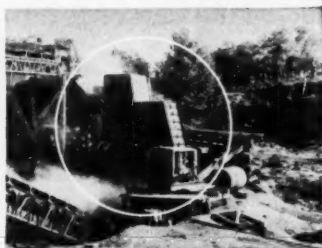
Only New Holland has it . . .



In Ohio Bank Run Aggregate . . . "Capacity is twice that of two crushers replaced" . . . writes Robert Coe of Basic Construction Materials, about Model 2020 New Holland Breaker. Takes all rock passing 20" opening; yields clean, cubical aggregate minus 1" in one pass.



In Florida Coral Rock . . . G. D. Monroe, president, Miami Crushed Stone, reports, "a considerable saving on maintenance and power costs." Here, New Holland Breaker Model 3030 replaced 3 old-fashioned crushers, producing 80 tons per hour in closed circuit system.



In Georgia Limestone . . . "The ability of this breaker (New Holland Model 5050) to reduce 50" material to commercial size, passing minus 4", in one pass is remarkable," says W. E. Lambert, of Lambert Brothers. Takes up to 400 tons per hour on 300 horsepower.

Write for free 16-page New Holland catalog. Get complete information on all 5 models of New Holland Double Impeller Breakers. See why "Dual Impact Action (exclusive with New Holland) does it again, and again!" how it produces more aggregate . . . cuts production costs . . . reduces maintenance. Address Department 00.

Complete New Holland line includes Double Impeller Breakers, screens, hammer crushers and pulverizers, feeders, belt conveyors, storage bins.



NEW HOLLAND DOUBLE IMPELLER BREAKERS

NEW HOLLAND MANUFACTURING COMPANY, MOUNTVILLE, PA.

Affiliate of the Sperry Corp.



Underground And On The Surface

The **ROCKMASTER "16"** Blasting System Cuts The Cost Of Handling Rock!

The story could be summed up in two words: *improved fragmentation*. Or you might prefer *better breakage*. However, the details of the ROCKMASTER "16" story make interesting reading for blasters.

This better breakage has increased loading machine and shovel production as much as 40% in mines, pits, quarries, and construction jobs. Many operators have cut secondary shooting in half... others have eliminated it. Time once wasted in uncovering and setting aside big rocks now goes into productive work. There's a sequel to this story! Better breakage means lower costs in milling—less work for the crusher and less wear and tear on equipment.

Better breakage is just one of the many advantages of the new ROCKMASTER "16" Blasting System. It helps you produce more material per pound of explosive... gives you more footage per round. Sixteen periods—a wide choice of short or long milli-second delays—add up to better control over throw, backbreak, and material size... better control over noise and vibration. Sixteen delay periods fire in 550 milli-seconds! There is less strain on timbers and roof... less dust and a quicker return to the face.

From the face and the front office you hear: "ROCKMASTER "16" is the greatest improvement in blasting methods since Atlas introduced milli-second blasting." Write for new booklet showing you how ROCKMASTER "16" fits into your operation.

ROCKMASTER: Reg. U. S. Pat. Off.

ATLAS

EXPLOSIVES
"Everything for Blasting"

ATLAS POWDER COMPANY, Wilmington 99, Del. • Offices in principal cities • Cable Address—Atpowco



ROCKMASTER "16" TIMINGS

Rockmaster No.	Avg. Time of Each Delay from Zero (milli-seconds)
0 (zero)	0 (inst.)
1	8
2	25
3	50
4	75
5	100
6	125
7	150
8	175
9	200
10	250
11	300
12	350
13	400
14	450
15	500
16	550





Dewatering by Moretrench

Progress began on this Michigan sewer when a Moretrench Wellpoint System took control of the water — 14 feet of it — in clay, sand, silt and hard pan.

There's PROFIT in wet jobs when you dig "in the dry." Our catalog shows you how. Write for your copy.

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New Jersey

Editorial Staff Changes



ROBERT K. TOMLIN

AFTER 40 YEARS of construction editorial service, Robert K. Tomlin retires from active duty as Managing Editor, *CONSTRUCTION METHODS AND EQUIPMENT*, and assumes the position of Consulting



HENRY T. PEREZ

Editor. A Harvard graduate, Tomlin spent several years with various New York City engineering departments on East River subway tunnels and the Catskill Aqueduct. In 1909 he joined the editorial

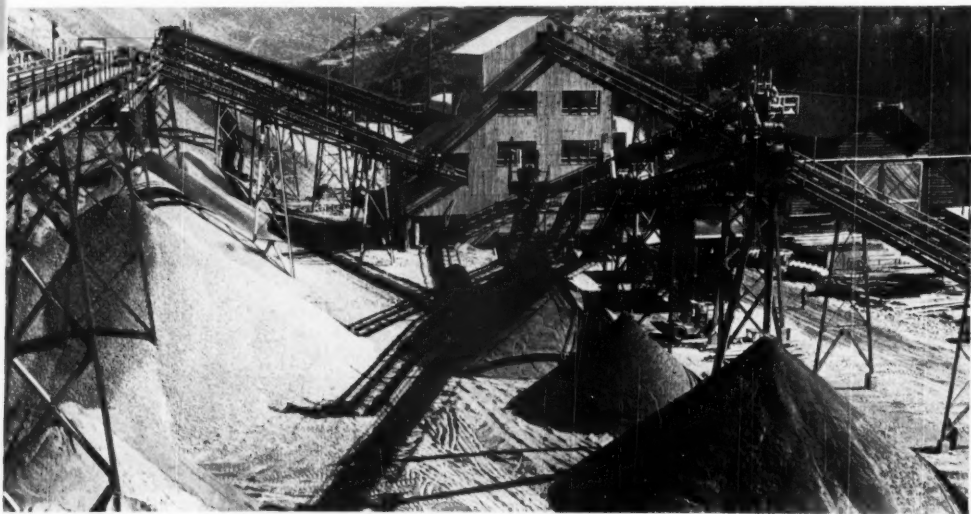
staff of the old *Engineering Record*, and through the years up to 1927 filled several editorial positions on that paper and its successor, *Engineering News-Record*. During World War I he was the first technical war correspondent to be assigned to the European battlefield.

In 1927 Tomlin was named Editor of *CONSTRUCTION METHODS*, serving in that capacity until 1946. Part of his extensive contribution to technical publishing was the development of the picture story technique, long used by this magazine. Despite recurring serious illnesses, he has served as Managing Editor since 1946.

Henry T. Perez, Assistant Editor of *CONSTRUCTION METHODS AND EQUIPMENT* 1946-48, and regional editor at Chicago for the last year for both this paper and *Engineering News-Record*, returns to New York headquarters to succeed Mr. Tomlin as Managing Editor. A graduate of Cooper Union and a Navy veteran, he obtained considerable construction experience with Spencer, White & Prentiss, Inc.; Merritt-Chapman & Scott; and Alabama Drydock & Shipbuilding Co.

NEXT MONTH: Hungry Horse Dam Aggregate Plant

DUE TO MECHANICAL difficulties, the article describing the sand and gravel processing plant at Hungry Horse Dam—announced on the front cover of this issue—had to be postponed at the last minute until next month. Look for this article, for it covers an ultra-modern push-button control plant of 700 tons per hr. capacity, one of the finest we have ever seen.—Editor



NOW! The most powerful 6-cylinder Ford Truck ever built!



New Ford 110-H.P. engine plus new 4-speed Synchro-Silent transmission make Series F-6 the standout performer in its class!

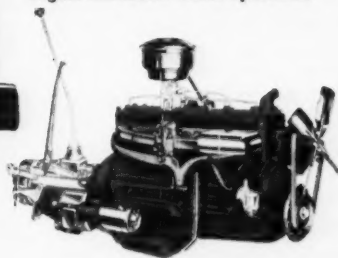
THE BRAND NEW Rouge 254 Truck Six gives you new power, new performance in the heavy-duty field.

This 254 cu. in. powerhouse gives you the latest engineering ideas. Free-turn, self-cleaning exhaust valves, faced with durable cobalt-chrome alloy. High-lift camshaft for increased valve opening. Chrome-plated top piston ring for longer cylinder wall life.

You get these and many other new features in the new "Rouge 254" available in Ford Model F-6. You get power that makes the F-6 the most powerful 6-cylinder Ford Truck ever built. You get the brand new 4-speed Synchro-Silent transmission. You get Bonus* Built construction which means big reserves of strength and power. See your Ford Dealer. Get all the facts about the new "Rouge 254," the fourth in a great line of Ford Truck engines.

*BONUS: "Something given in addition to what is usual or strictly due"—Webster

New
ROUGE 254 SIX
ENGINE
FOR THE HEAVY DUTY F-6
Thoroughly Proved in Industrial
Engine and Motor Coach Operation



In Ford Series F-6—110 Horsepower, 212 lbs.-ft. Torque
In Ford Series F-6 COE—106 Horsepower, 210 lbs.-ft. Torque

THE NEW FORD 254 ENGINE
gives you all these modern design features!

CHROME-PLATED top piston ring for better lubrication, longer cylinder life.

AUTOTHERMIC aluminum alloy pistons with solid skirt. Steel strut controls piston to wall clearance.

HIGH-LIFT camshaft for increased valve opening, greater power.

FREE-TURN exhaust valves. Self-cleaning, better seating, longer-lived.

COBALT-CHROME faced exhaust valves for hard contact surface giving longer wear.

HIGH-TURBULENCE Power Dome combustion chambers for more power, greater economy.

Ford Trucks Cost Less because FORD TRUCKS LAST LONGER

Using latest registration data on 6,106,000 trucks, life insurance experts prove Ford Trucks last longer!

Electric power, steel forms and hydraulic jacks introduce . . .

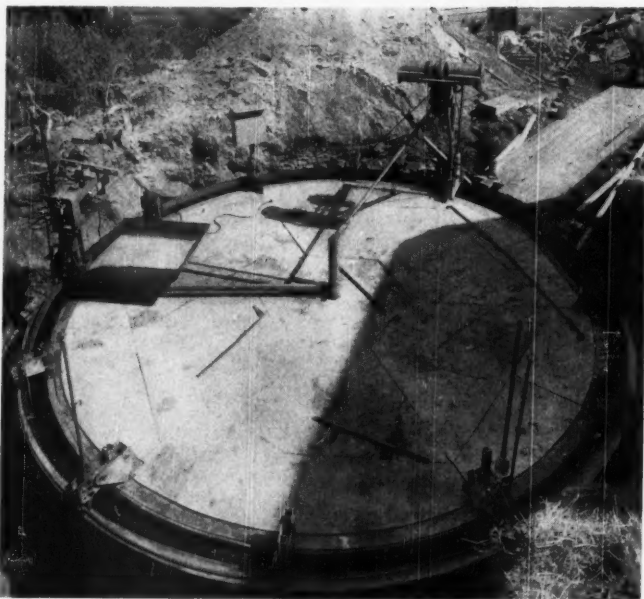
Something New in Slip Forms

THIS SIMPLY OPERATED and easily maintained setup for erecting concrete silos and storage bins has been introduced successfully at various locations in and around New York. The method was developed in Sweden and produced such labor-saving and cost-cutting results that the Swedish government and most leading contractors have made the Concretor, as it is called, the standard for this type of construction.

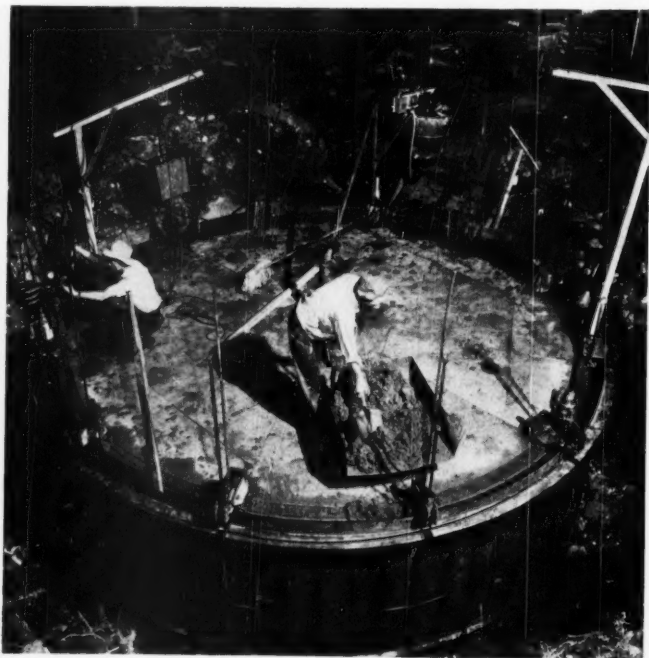
Inventor Emrik Lindman, outstanding Swedish concrete construction engineer, spent several years in perfecting the silo equipment and has delegated Ulf Hedeby, another engineer, to demonstrate the methods involved and to train foremen in its proper use. American representative for the Concretor is B. M. Heede Inc., 80 Broad Street, New York City, who have conducted all introductory jobs to date with the intention of interesting American construction men in the purchase and continued use of this package operation.



HEART OF OPERATIONS is three electro-hydraulic jacks which climb plain round jack-rods in unison, or separately.



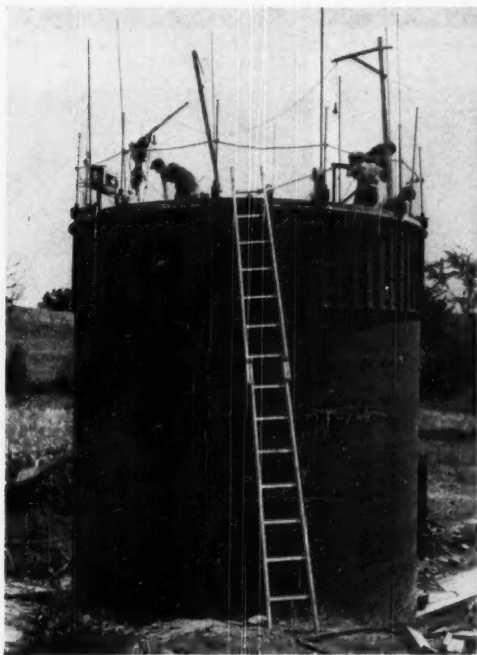
1 SET UP AND READY to pour. Working platform is supported by inner steel ring. Concrete tray swings on center pin after receiving various batches. Three of twelve clamps . . .



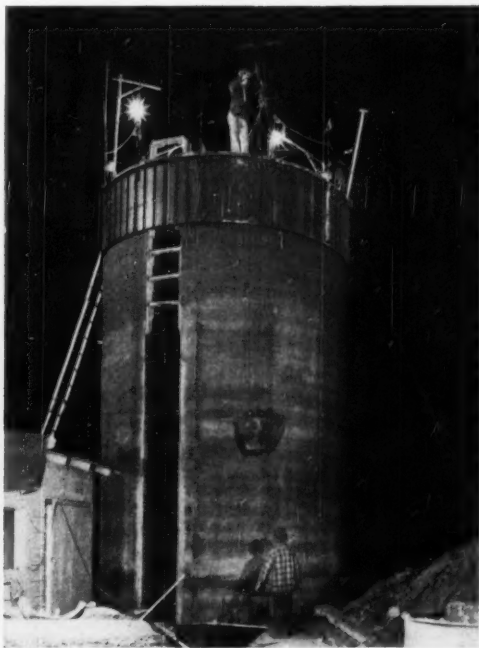
2 . . . CARRY HYDRAULIC JACKS which workman activates at control box. Jacks are set for 1-in. rise every 5 min. or 1 ft. per hr. Vertical rods with hooks are for stringing safety rope railing. Pour pictured began late in evening and . . .



3 . . . MORNING FINDS IT WELL on its way up. Opening is framed and reinforcing rods, vertical and horizontal, are placed as rise continues. Gas-engine generator supplies current for mixer, lights, bucket hoist and hydraulic jack pumps. Thus . . .

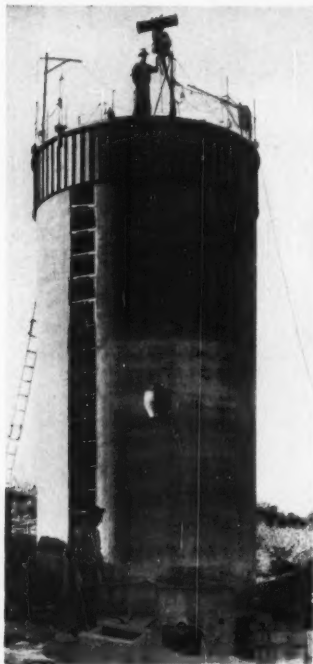


4 . . . OUT OF WAY locations are taken care of without use of much varied mixing and hoisting equipment. Job pictured took place on farm owned by Harold C. Dewitt of North Chatham, N. Y.



5 NIGHT SHIFT BACK and job continues apace. Rubber-tired buggy frame is lifted high, cradles are inserted under bucket pins, and load is wheeled to electric hoist hook with ease after each batch is mixed. As silo rises . . . (Continued on next page)

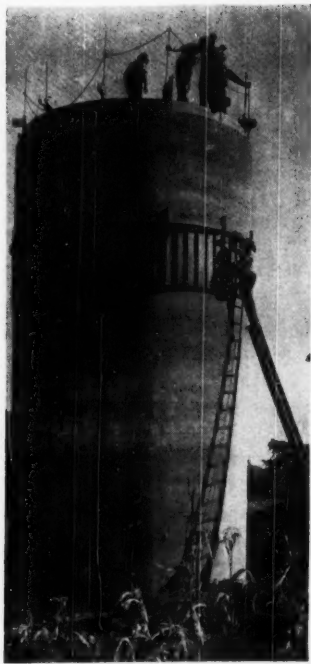
CONCRETE SILO . . . Continued



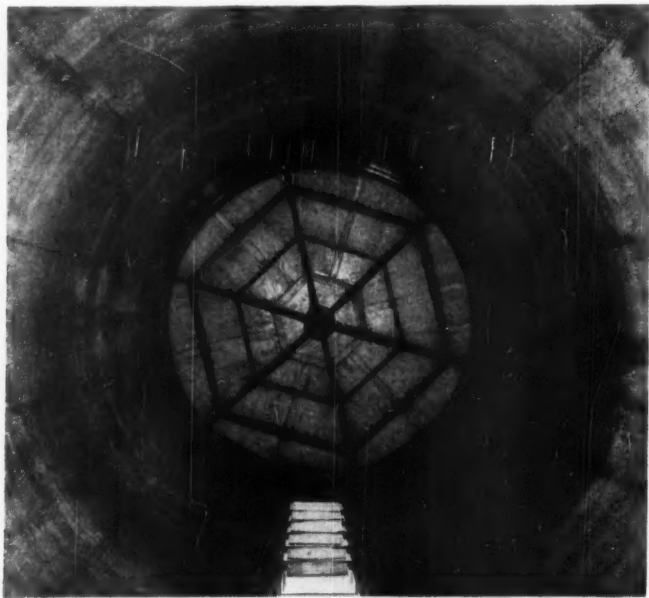
6 . . . WOOD FORMS ARE STRIPPED, leaving reinforcing rods. Absence of honeycombs pleased engineers and contractors who gathered at site and watched job.



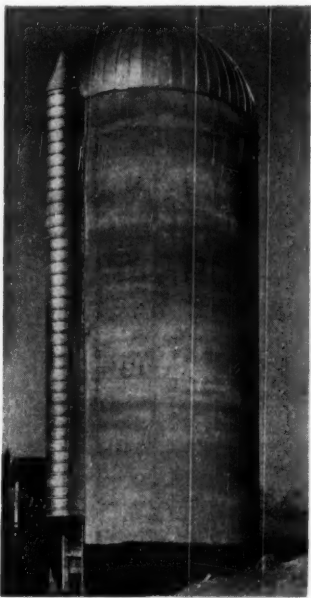
7 TOPPED OFF! Jacks and hoist are dismantled. Outer ring is lowered by three lines to special hand-operated winch, and process repeated on inner ring and platform.



8 BOLTS ARE LOOSENEED to ease descent. Outer ring sections can be spread with filler pieces to increase wall thickness from 5 to 8 in. Silo diameter inside is standard at 16½ ft.



9 UNIQUE SHOT INSIDE SILO shows inner ring, steel bracing, platform and absence of honeycombs. Slip forms may also be used for vertical raceways, water towers, conveyor towers, storage groups, etc.



10 CAPPED, WATERPROOFED, and ready for business. Entire setup dismantles and loads on one truck.

GREAT NEWS FOR CONTRACTORS...

THE POWDER-ACTUATED FASTENING TOOL *Comes of Age*

After Months of Laboratory Experimentation... After Thorough "On-the-Job" Testing... We Proudly Present the New and Amazing DRIVE-IT "300" the Powder-Actuated Fastening Tool Our Customers Asked For.

THE BIRTH OF THE DRIVE-IT IDEA

Three years ago Powder Power introduced the most revolutionary and efficient fastening method known. It was the DRIVE-IT powder-actuated tool... a tool that utilized a small power charge and a hardened steel "drive-pin" to fasten steel or wood to concrete or steel. Fastening with this tool was a split-second operation—eliminating the drudgery of drilling or hammering—saved contractors hours of time and thousands of dollars. In short, it was a bonanza for everybody



who had a steel or wood to concrete fastening problem. Thousands bought DRIVE-IT tools and letters of praise for their money-saving effectiveness flooded in.

PRESENTING... THE NEW DRIVE-IT "300"

Months ago our engineers went to work to design an *entirely new* and *better* powder-actuated tool... one which would embody all of the features our customers asked for. The result is the DRIVE-IT "300".

Here it is... it's ready for you NOW. Check these features and you'll realize why we say: "The new DRIVE-IT "300" is the *only* truly modern, efficient and *safe* powder-actuated tool on the market!"

1. POSITIVE 3-WAY SAFETY.

1. Permanently attached, adjustable safety pad. Can be used in restricted places.

2. Cannot be fired accidentally. Tool must be depressed against solid surface to be fired.

3. No hitting or lunging to fire—a twist of the wrist does it... automatically!

2. "CONTROLLED POWER" with one power charge. No need to buy 4 or 5 different charges.

3. 40% MORE POWERFUL than any other "22" tool. More power means deeper penetration, greater holding strength, more versatility.

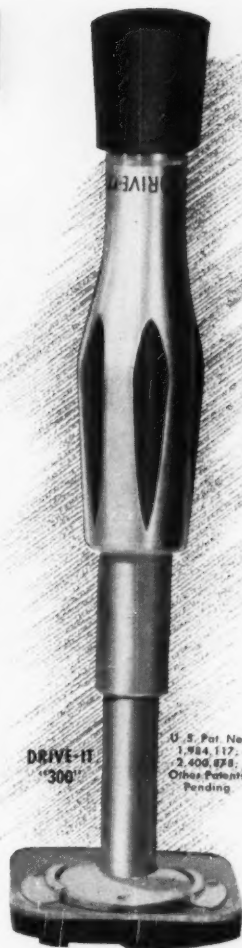
4. AUTOMATIC EXTENSION BARREL for tight places—no need for extra, expensive extension barrels.

5. LIGHTWEIGHT. Tool weighs only 5 lbs. 10 ozs. Makes overhead work easy. Can use for hours without tiring effects.

6. LESS NOISE. Tool is much quieter in operation—easy on the nerves.

7. FLANGELESS DRIVE PINS. Easier to handle—cheaper to buy. No "ring" to dig out of tool after firing. No area exposed to corrosion on plated pins after driving.

There it is, mister! A powder actuated tool with the "bugs" out. One that can save you up to 75% in fastening costs and *still* keep your workers happy. Do yourself a favor and send for the whole story today!



DRIVE-IT
"300"

U. S. Pat. No.
1,984,117;
2,400,878;
Other Patents
Pending



Distributors Coast-to-Coast

POWDER POWER TOOL CORPORATION

0704 S. W. Woods Street

Portland 1, Oregon

Canadian Distributors: AMMO-POWER TOOL CO., LTD.

Foot of McLean Drive, Vancouver B. C., Canada

Sure I'm interested... Send me the story! Quick!

NAME _____

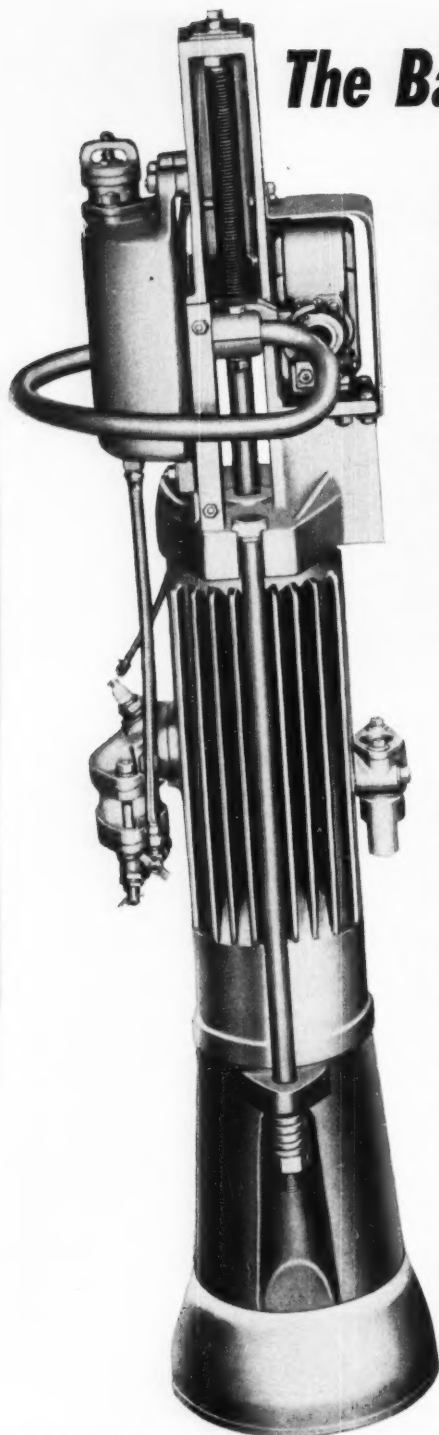
COMPANY _____

STREET AND NO. _____

CITY AND STATE _____

POWDER POWER TOOL CORPORATION,

0704 S. W. WOODS STREET, PORTLAND 1, OREGON



The Barco Pegson Rammer **Lets one man do the work of five**



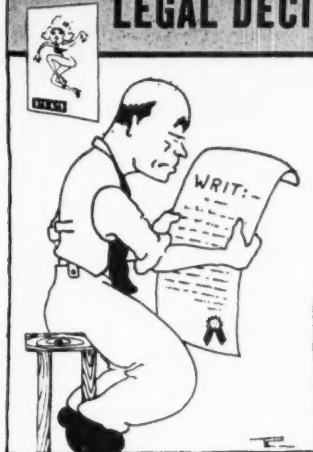
Barco revolutionizes soil compaction! By actual tests, certified by Government agencies, one man using the new Barco Rammer performed 97% soil compaction with lifts of 12" to 20" refilling ditches as contrasted to the 4" lift obtained by conventional methods. One man doing the work of 5! The Barco Pegson Rammer is entirely self-contained, requires practically no maintenance. Anyone can learn to operate it skillfully and safely after only a few minutes instruction. No lifting, no straining, no carrying. A slight tilt on the handle will "walk" the Rammer where you want it to go.

Especially adapted to tamping close to abutments and other wall structures, and in narrow ditches and hard-to-reach places, where rollers can't reach. Don't tie up your funds in expensive equipment. Let the Rammer cut your costs. For more information write for catalog or demonstration, Barco Manufacturing Company, 1812B Winnemac Avenue, Chicago 40, Illinois. In Canada: The Holden Co., Ltd., Montreal, Canada.

THE BARCO ***Gasoline Rammer***

FREE ENTERPRISE . . . THE CORNERSTONE OF AMERICAN PROSPERITY

LEGAL DECISIONS CONCERNING CONSTRUCTION



The Double Doublecross

"I'M GOING TO BUILD a house on the lot I bought yesterday. I know none of the contractors in the city, but I have every confidence in you. Would like you to recommend one that can be depended on in every way," the owner stated.

"I'll think it over and let you know," John Doe agreed, and he then approached a building contractor by profession.

"I can get you a fat contract to construct a building if I recommend you," Doe suggested.

"If you do and I get the job, I'll pay you for your trouble," the contractor agreed. Doe recommended him, the owner gave him the contract and then Doe sued the contractor for his "trouble."

"You can't collect money for double-crossing your friend," the contractor argued, and the Massachusetts courts in a case reported in 136 Mass., 265, decided in the contractor's favor on the ground that the promise was unenforceable as John Doe was in a position of trust and confidence, and, even though his recommendation was honest, he was really "selling out" so far as the owner was concerned.

Shared Profits

THE STATE had advertised for bids for the construction of a certain public building. Three contractors, A, B and C were competing bidders, and met at the Commercial Club.

"I'm going to put in a bid for

\$100,000, and I don't care who knows it," A announced.

"And my bid'll be under that," B stated.

"And mine'll be under yours again," from C.

"There's no need of cutting each other's throats. Let's all bid right around \$100,000—and the three of us divide the profits," C suggested. The others agreed, the arrangement was carried out. A got the contract, and B and C claimed their share of the resulting profit.

"Nothing doing," A told them. The disappointed contractors sued in the Federal Courts and lost, the Court applying the well established principle that an agreement not to compete on a public contract is against public policy and unenforceable.

In a Michigan decision (reported in 97 Mich. 172), the State called for bids on a public building, to be paid for in public land, A agreed that if B would not bid against him, he would give B a percentage of the land received under the contract, and the Michigan Courts ruled that B could not enforce the agreement against A.

The Disputed Demand

"AND THE SAID contractor agrees to quit and deliver up possession of the leased building at the end of said term in as good condition as when leased, reasonable wear and tear and damage by the elements excepted," the contractor's lease provided.

"And it is further agreed that any permanent improvements made to said premises by said contractor shall be paid for by the landlord, at the actual amount thereof plus 6 percent," another clause of the same lease stipulated.

The lease in question expired on a certain Saturday. The contractor's landlord called on Monday morning, and found his tenant with his feet on the fender.

"What does this mean? You were supposed to be out of here on Saturday," the landlord demanded.

"I don't have to move out until you've made a demand for possession," the contractor stated.

"I don't have to make a demand. The lease says you're to deliver up

possession at the end of the term, and the term ended Saturday night at 12 o'clock.

"I admit that is the rule in ordinary cases," the contractor argued, "but it does not apply to a case like this, where you're bound to pay for improvements. Under our lease you have to tender the price of the improvements and demand possession before you can terminate the lease."

This is a lease-hold situation that may arise any day, and the Missouri and New York Courts have ruled in favor of the landlord. See the case of Tallman vs Coffin, 4 N. Y. 134.

The Sold Notes

THE CONTRACTOR held a number of notes, and attempted to discount them with his local bank.

"You have \$5,000 to your credit," the bank wrote, "and we will be glad to discount your notes on your agreement that the deposit is not to be withdrawn so long as the bank holds any of your notes."

"This arrangement is quite satisfactory," the contractor wrote back, and the bank discounted the notes.

A few weeks later one of the bank's customers asked the cashier if the bank could sell him some notes for a short term investment, and the bank offered him the contractor's notes.

"Of course, the bank'll guarantee payment," the customer suggested. The cashier agreed, and the customer paid for the notes in cash.

When the contractor learned this, he promptly drew a check against the \$5,000 deposit, which the bank as promptly refused.

"You were to leave the deposit here as long as we held that bunch of notes," the cashier pointed out.

"When you sold them to one of your own customers, you're not holding them," the contractor reported.

"So long as our guarantee's on the back of the notes we're 'holding' them," the cashier persisted, the contractor sued for the amount of the deposit, and the Iowa Supreme Court ruled in his favor, in a case reported in 202 North Western Reporter 80.

NO TIME FOR FAILURES



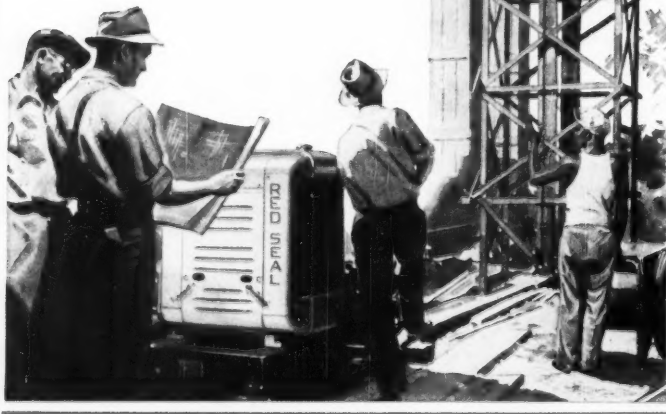
THERE'S no place in the construction trades for engines that have to be "babied". That's why more and more contractors are buying equipment with Continental Red Seal power. You'll find these dependable engines in leading makes of contractors' equipment—in

earth-movers, mixers, compressors, winches, hoists, pumping units, generator sets—as well as in highway and industrial tractors and heavy-duty trucks. Such features as Continental patented individual porting, leakproof water pump, patented oil and dust seals, directional cooling, full-length water jacketing, and statically and dynamically balanced crankshaft with Tocco-hardened journals add up to real performance with minimum time-out. When buying equipment, it will pay you to choose a make with Red Seal Power.

The Red Seal parts and service organization spans the continent. Service whenever, wherever needed, backed by master warehouses at Dallas, Los Angeles and the Muskegon main plant.

***Continental Motors
Corporation***

MUSKEGON, MICHIGAN



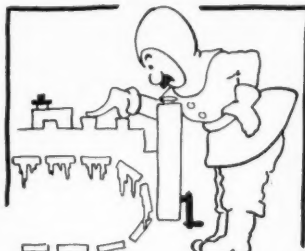
ANOTHER EQUIPMENT MAINTENANCE FEATURE

Cold Weather Tips On Engine Care

By HOMER C. CAMPBELL

Service Manager
H. W. Moore Equipment Co.,
Denver, Colorado

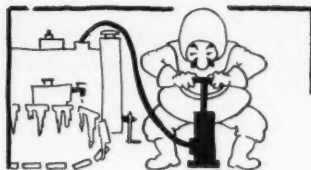
THE CONDITION of an internal combustion engine and the care you give it have a lot to do whether you start these cold mornings or you spend the morning in starting. We can't do much about the long, cold winter, but we can eliminate a lot of fighting with a balky, frost-bound engine by using the proverbial ounce of prevention.



MAKE GENERAL INSPECTION

The condition of the engine will have a lot to do with whether you start in the morning or you spend the morning in starting. General engine condition should be carefully inspected before the cold mornings hit you, not after. Compression is important for easy starting. Causes of poor compression are wear on piston assemblies, broken piston rings or stuck rings and faulty valve seating. Cold weather starting and low temperatures in operation will accentuate these troubles. Fuel dilution of the crankcase oil resulting from repeated injections of fuel without combustion will impair lubrication. So be critical of your engine. Check valve clearances, timing and all tune-up points.

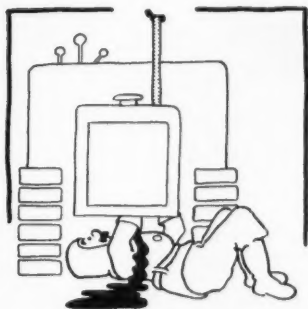
The injection system must function to top performance for best cold weather operation. Fuel supplies must be kept free from water and sediment, more so in cold weather than in warm. Fuel must



CHECK COMPRESSION

be of good quality and properly handled. Remember that we put about as much dirt and dust into our engines as we let get into them through use of contaminated containers.

Lubricants must be changed to fit the season, and this is important if easy starting and continued trouble-free service is to be had from the equipment being used.

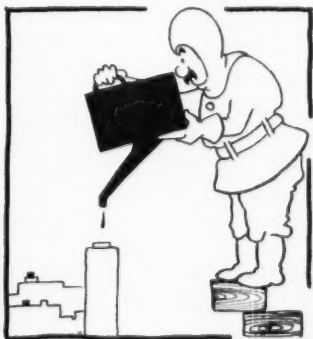


INSPECT CRANK CASE LUBRICATION

Starting a fire under the crank case will assist in easy starting—it will also burn up a lot of valuable equipment. A little cold weather preventive maintenance is a lot cheaper and easier.

The cooling system is given attention as a rule due to the fact

(Continued on page 86)



CHECK COOLING SYSTEM

PERFECTION

IS THE NAME TO
Remember
WHEN YOU WANT
BODIES & HOISTS
FOR

PAYLOADS
THAT REALLY
PAY!



Photos show a PERFECTION No. 354 heavy-duty Dump Body of 10 yd. capacity; length 204", width 84". Equipped with

PERFECTION

No.

1027

ROLL-A-LIFT



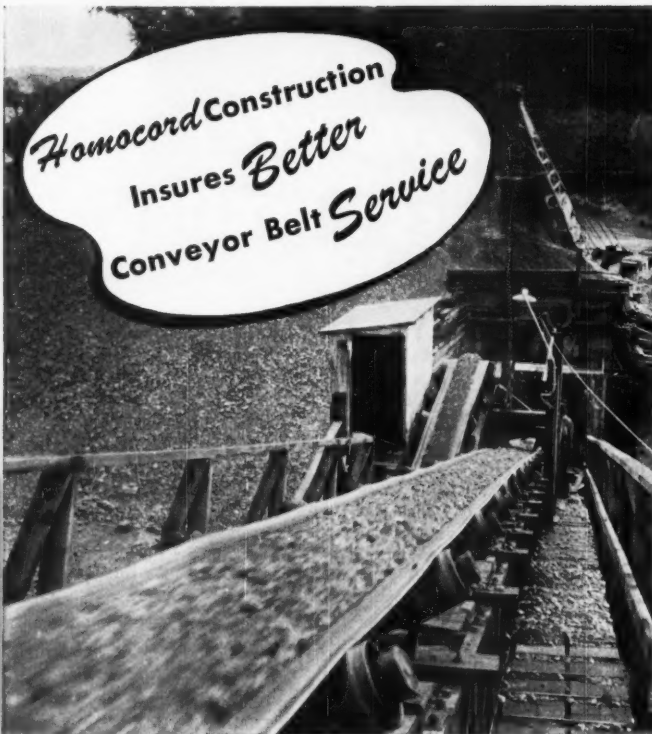
Write for Complete Information

THE PERFECTION STEEL BODY CO.

Galion, Ohio, U. S. A.

PERFECTION
STAKE and DUMP BODIES
HYDRAULIC HOISTS

FOR ANY TRUCK
STANDARD or SPECIAL UNITS
IN ALL SIZES • FOR ANY USE



**Homocord Construction
Insures Better
Conveyor Belt Service**

Manhattan Belt Engineers were assigned the job of developing a new type conveyor belt that would be strongest where other belts are weakest.

As a result of their entirely new approach to conveyor belt design, Homocord's "Rippling Muscles" construction has ended many contractors' conveyor worries.

A new principle of flexibility is built into Homocord so that it conforms to the troughing idlers without strain. The strength members of stout cords, cushioned in Flexlastics, dissipate shock loading like the muscles in a wrestler's back. Homocord is mildew-proofed, tough in every respect and holds fasteners.

Overwhelming demand for this exclusive construction, designed only for conveyor belt use, has proved its extra advantages. Check them for yourself, before making your next investment.

If you are planning a long-lift, heavy duty conveyor, ask about the new Ray-Man "Tension-Master" Belt. It's the first rayon cord conveyor belt designed for super-strength.

MANHATTAN RUBBER DIVISION — PASSAIC, NEW JERSEY



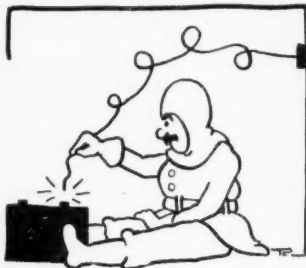
RAYBESTOS-MANHATTAN, INC.

Manufacturers of Mechanical Rubber Products • Rubber Covered Equipment • Radiator Hoses • Fan Belts • Brake Linings • Brake Blocks • Clutch Facings • Packings • Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Bowling Balls

(Continued from page 85)

that damage is so obvious. The damage to other working parts is just as serious but not, of course, as obvious. However, a lot of cooling systems are abused. The practice of starting the engine, traveling to water, and then dumping cold water into a warmed-up cooling system is a great stimulant to the sale of cylinder heads.

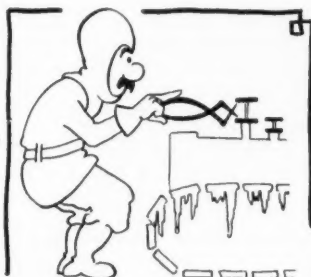
The electrical equipment that is



TEST ALL ELECTRICAL EQUIPMENT

responsible for the efficient starting of the engine must be up to peak performance if easy starting is to be had. Poor connections, badly damaged wiring, weak batteries, etc., all add to cold morning starting troubles.

In reality, your engine must be in top operating condition if cold weather starting is to be easy. If



CHECK VALVE CLEARANCES

you wish to take the easy road and let your cold weather preventive maintenance go until the cold morning arrives, you are headed up a steep hill with your starting troubles and the distributor's phone will start to ring about 8:15 each cold morning. A complete tune-up and winterizing of your equipment will give you the desired results. Next best bet is to park your equipment on a steep hillside and hope that it will start before it reaches the bottom.

unscrambled, they all say one thing...

Low Cost Per Unit of Work and that means... Bethlehem Wire Rope

Ever stop to figure the *real* cost of your wire rope—the cost per unit of work? Do you know, for example, what your rope is costing you for every yard of rock it moves? Or every ton of ore, coal, or slate it hoists? Or every ton-mile in oil-country rotary drilling?

This yardstick—cost per unit of work—is the only *true* measure of wire-rope expense. Purchase price alone is not the answer. The rope with the lowest price tag isn't necessarily a bargain. It's the service life—the total amount of work it will do—that determines your actual cost. That's why we say: specify Bethlehem.

Bethlehem wire rope is a quality product, one carefully and conscientiously built. From the making of the steel to the final reeling and shipping, it is a product that merits your confidence. Because of its long life in service, its cost per unit of work is *low*; it is an economical rope in the truest sense.

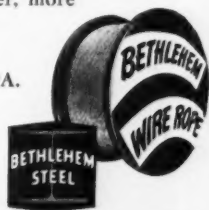
Order some today. Check its performance—check thoroughly. We believe you'll soon agree that there isn't a better, more economical rope on the market.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

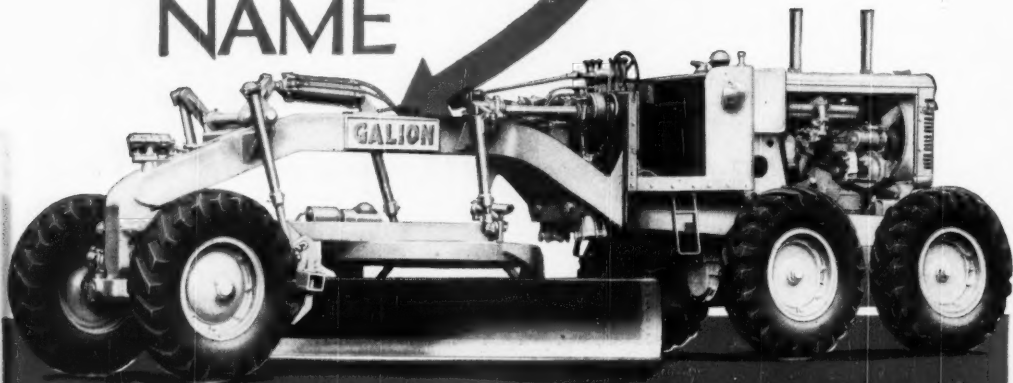
On the Pacific Coast Bethlehem products are sold by

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for this
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Motor Graders

The name "GALION" on
a Motor Grader represents
superiority in design, con-
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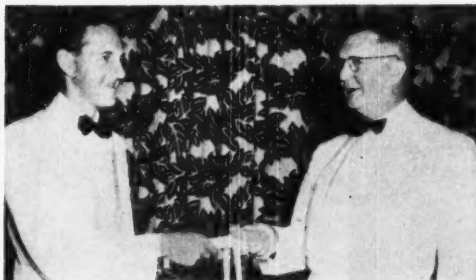
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Cable address: GALIONIRON, Galion, Ohio

Present and Accounted For...A PAGE OF PERSONALITIES



HEADING Associated General Contractors of America during 1950 will be Walter L. Couse (left) as president and Glen W. Maxon as vice-president. Nominated at recent Fall Board meeting at French Lick, Ind., they will take office at Annual Convention at San Francisco next March. Both are presidents of their own contracting firms, Walter L. Couse & Co., Detroit, and Maxon Construction Co., Inc., Dayton, Ohio.

JESS LARSON has been named by President Truman to head General Services Administration, consolidating functions of Federal Works Agency, Public Buildings Administration and Public Roads Administration.



CHARLES S. WHITNEY (right) representing firm of Ammann & Whitney, consulting engineers, receives from Henry C. Turner, Jr., president, Turner Construction Co., New York City, first annual award of Concrete Reinforcing Steel Institute. Award was given for paper entitled "Thin Shell Concrete Structures".



FLORIDA'S FIFTH A.G.C. UNIT came into being when Chapter President J. Hilbert Sapp (right) accepted charter of new Florida East Coast Chapter from A.G.C. Managing Director H. E. Foreman. Presentation was made at West Palm Beach, which will be headquarters of new unit.



E. W. ELLIS, special bridge engineer of Georgia State Highway Department, holds plans of new multi-million-dollar Turtle River bridge being constructed near Brunswick, Ga., for P. B. McWhorter, division engineer of Public Roads Administration, to check some details. Diamond Construction Co., Washington, D. C., and Savannah, Ga., have contract for substructure for 4,470-ft. long bridge.

New Spray-Painting Process



NEW METHOD of spraying anti-corrosive materials is demonstrated by Stan Jeurling, chief technician of Swedish firm which has perfected Antropahl method from basic German research. Process features use of paint which is solid at normal temperatures.



SPECIAL GUN used to spray the paint features spray nozzle surrounded by a series of acetylene flames.



ELECTRICAL UNIT is employed to melt paint to proper consistency for spraying through the Antropahl gun.

NEW TECHNIQUE and equipment is used to apply a protective coating tested to last as long as 15 years without repainting. Acetylene blowers on the gun have a double purpose: They serve to dry the surface upon which the paint is being applied, and they speed the drying of the paint. This means that the paint can be applied in any season and under all weather con-

ditions at speeds as high as 375 sq.ft./hour. Some advantages of the solid paint are: It cannot be weakened by the addition of thinners; permits the use of raw materials with valuable rust-protective qualities which cannot be used with organic solvents; and the paint forms a very binding connection as it penetrates into the pores of the metal being coated.

SCHRAMM

advertises

in

CONSTRUCTION
METHODS AND EQUIPMENT

...and has for

23 years



How SCHRAMM uses CONSTRUCTION METHODS AND EQUIPMENT today — to increase sales; to cut the cost of selling.



WHY?

... Because CONSTRUCTION METHODS AND EQUIPMENT readers — on-the-job construction engineers and contractors — buy and use SCHRAMM compressors and air tools to mechanize construction jobs.

... Because SCHRAMM knows the importance of telling how its equipment mechanizes construction work ... to the men who are responsible for mechanization ... in the magazine they read for mechanization ideas.

Since 1919, CONSTRUCTION METHODS AND EQUIPMENT has preached the gospel of mechanizing construction jobs ... the gospel of better construction, faster construction, lower-cost construction ... the gospel of the makers of construction equipment, tools, accessories, materials, parts, and supplies.

If your product can help construction men do their jobs better, faster, cheaper, advertising in CONSTRUCTION METHODS AND EQUIPMENT can help you make more sales ... in the country's busiest market.

CONSTRUCTION METHODS AND EQUIPMENT

November 1949



Here are 9 other manufacturers of compressors, gasoline hammers and tools who advertise in CONSTRUCTION METHODS AND EQUIPMENT to reach the men responsible for mechanizing construction jobs.

Air Compressors and Tools

Chicago Pneumatic Tool Co.
Gardner-Denver Co.
Independent Pneumatic Tool Co.
Ingersoll-Rand Co.
Jaeger Machine Co.
Le Roi Co.
Worthington Pump and Machinery Corp.

Gasoline Hammers and Tools

Barco Manufacturing Co.
Syntron Co.



CONSTRUCTION



METHODS AND EQUIPMENT

Since 1919, the workbook of construction mechanization

MCGRAW-HILL PUBLISHING COMPANY, INC. • 330 WEST 42nd STREET, NEW YORK 18, N. Y.

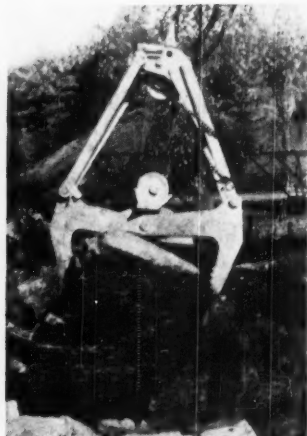
CONSTRUCTION EQUIPMENT NEWS • • A Preview of

By MELVIN DEAN, Equipment Editor

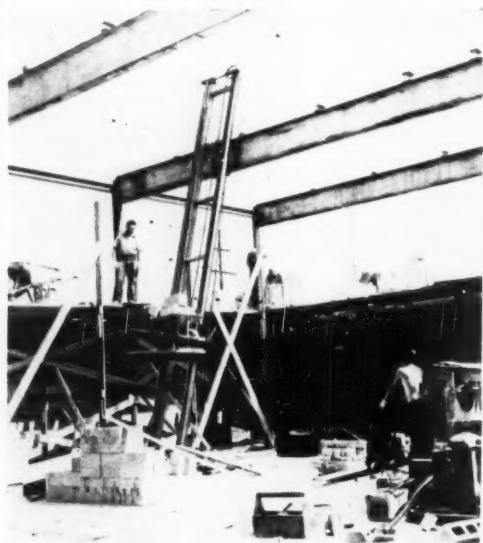


FULL-HYDRAULIC SWING LOADER—Features 180-deg. swing and quick-change convertibility to mobile crane or backhoe. As loader, unit handles a $\frac{3}{4}$ -yd.-material or 2-yd.-snow bucket. Will load from any point in 10-ft.-wide swath. Main

weight and all leverage of load are centered on front wheels for maximum traction and crowding power. Bucket is provided with power dump and return. Travels at speeds up to 15 mph.—**The Mandt Mfg. Co., 490 W. Goodale St., Columbus 8, Ohio.**



FIVE-TON STONE GRAB—Designed for hard service, this 5-ton stone grab has a 4 ft. 6-in. spread. It bites deeply and holds fast. Weighs 2,200 lb. and is safely handled on $\frac{3}{4}$ -yd. crawler crane.—**The Wellman Engineering Co., Cleveland 4, Ohio.**

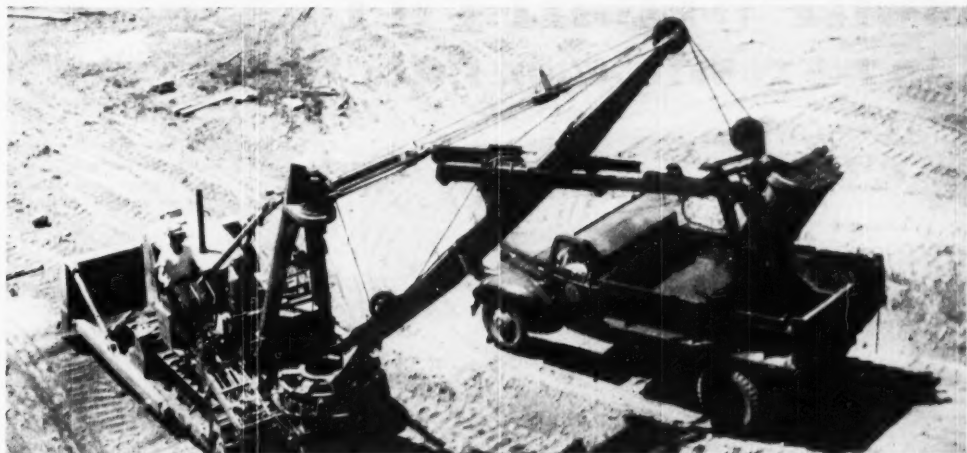


INCLINED ELEVATING TRACK—Incline-Track simplifies elevating of materials to workman. Manufacturer supplies platform carrier and reeving pulleys; contractor builds track to desired length, using parts furnished and regular lumber. Pulley arrangement provides a double line so that pull at hoist does not exceed 400 lb. Any hoist having a 400-lb. capacity can be used with this arrangement.—**King Mfg. Corp., 3146 W. Chicago Ave., Chicago 22, Ill.**



SHOULDER MAINTAINER—Hydraulic road tool, designed specifically for maintenance of shoulders, features a patented, automatic windrow eliminator on the rear moldboard. Front moldboard cuts, blades, and rolls material inward, cutting high spots and filling depressions. Side and transfer moldboard deliver excess material to rear moldboard which is positioned at an angle opposite to the forward unit.—**Lull Mfg. Co., 3612 E. 44th St., Minneapolis 6, Minn.**

New Machinery, Tools and Equipment That Will Help You on the Job



HALF-YARD SHOVEL FRONT—Attachment increases adaptability of Hystaway unit when used on Caterpillar D7 and D8 track-type tractors. Features of this half-yard shovel-front attachment include a long reach, fast swing, ample power, and absence of tail swing. Unit can be mounted on either new or used machines without any major alterations. Utility use of the bulldozer

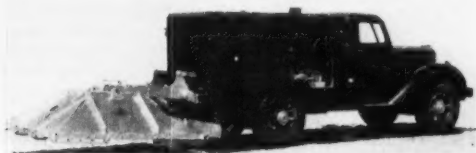
blade on the tractor is retained even with the complete Hystaway unit installed. The Hyster shovel has a 16-ft. 9-in. boom length, an 11 ft. 9-in. dipper-stick length, and an 18,000-lb. dipper bail pull (with 10-in. lagging). Dipper bail speed (also with 10-in. lagging) is 81 fpm. Complete details from any Caterpillar dealer or from—**Hyster Co., 2921 N. E. Clackamus, Portland 8, Ore.**



MATERIALS HOISTING TOWER—Features use of a round mast, which permits swinging hopper or bucket to right or left at any height, thus simplifying discharging operations. Mast of the Sonco hoist consists of steel tubing and U-channel steel, and is furnished in unit lengths of 13, 16½, and 20 ft. Masts can be extended to any height. Safety gripping device prevents load crashing down in event of failure of hoisting cable.—**Techno Exports, 15 Whitehall St., New York 4, N. Y.**

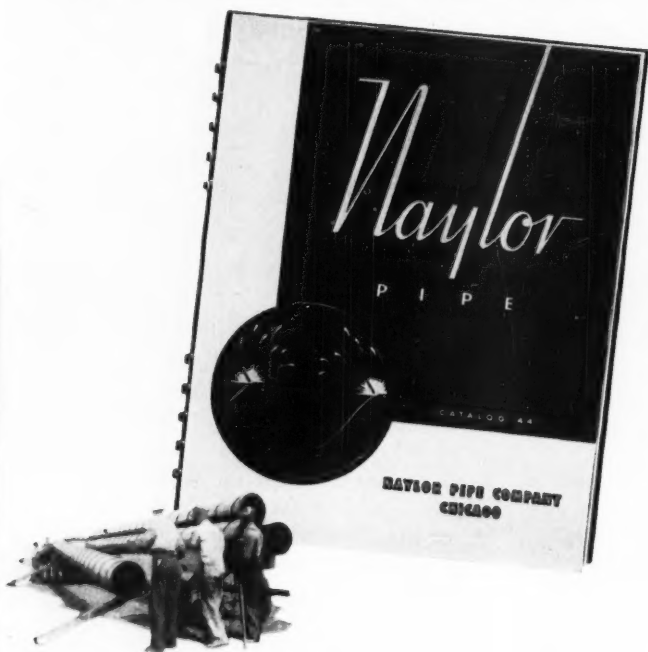


SIDE-DUMP TRAILER TRAIN—Two semi-trailers, coupled by a pneumatic-tired dolly, have a combined capacity of 44 tons. Gross weight of the vehicle, loaded, is estimated at 180,000 lb. Outstanding feature is the automatic down-folding side door, which drops open as the body is raised for dumping and closes automatically as the body is lowered to riding position. Two hydraulic, telescopic hoists, controlled from the cab, raise each body.—**Easton Car & Construction Co., Easton, Pa.**



ASPHALT SURFACE HEATER—Clarkmore heater is mounted on a specially built Diamond T truck. Unit is designed for economical resurfacing of sheet asphalt, rock asphalt, asphalt block, and plant mix. All operating parts—fuel-oil tank, gasoline tank, engine, blower, pumps, and hydraulic hoist—are housed in rigid steel body. Controls enable operator to move machine without getting into the truck cab.—**Asphalt Maintenance Co., 41 Park Row, New York 7, N. Y.**

FACTS ON LIGHT-WEIGHT PIPE IN THE CONSTRUCTION FIELD



**This Helpful Book Gives Full Data on
Applications and
Performance Advantages
of NAYLOR PIPE
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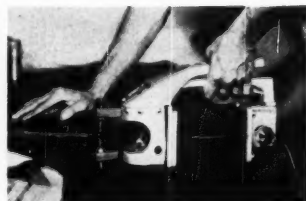
New York Office: 350 Madison Avenue, New York 17, N. Y.

Look for These Next Month

- ▶ **Clamp for curb-and-gutter forms** combines advantages of steelform design with low cost of wood.
- ▶ **Portable electric winch**, available in six models, can be used for operating draglines, as a truck winch, or as a power unit for hoist towers or materials conveyors.
- ▶ **Hydraulic rock breaker** performs quick and economical demolition of rock or mass concrete where explosives or ball drop are prohibited or impractical.
- ▶ **Adjustable-discharge transit mixer** combines features of horizontal-type mixer with advantages of high-discharge.
- ▶ **Bulldozer blade** increases versatility of high-speed rubber-mounted scraper.
- ▶ **Self-propelled belt-type loader** has wide application in road construction and maintenance. Top travel speed is 26.4 mph.

HEATLESS WELDING METHOD—

Cold pressure welding has been successfully applied to several types of non-ferrous metals. In the Kold-weld process, the metal is made to flow away from the welding point as specially designed dies are brought together. Applied without electricity or heat, the process can be used to make three types of welds—the straight weld, the ring weld, and the continuous seam weld. The process is available on a lease basis, according to the cost of the welded parts. The company provides blueprints for constructing the welding tools, as well as engineering services as part of the lease.—**Kold-weld Corp.**, 10 E. 40th St., New York 16, N. Y.



PORTABLE SPOT WELDER—Light-weight unit (22 lb.) is completely one-hand-operated. The 110-v. units weld two sheets of any weldable steel 20 to 18 gage, galvanized iron, Monel and Hoskins alloys, and stainless steel 2 gages thicker. The 220-v. unit welds up to 1/8-in. thickness. The Big Shot modulator permits adjustment for varying power currents.—**Tool & Equipment Distributors**, 636 S. 10th Ave., La Grange, Ill.

How Texas converts *two-lane* highways into *four-lane* superhighways



U. S. Highway 81 near San Antonio, Texas, widened from 20 to 52 feet and resurfaced with Texaco Asphaltic Concrete paving by the H. B. Zachry Company of San Antonio.



A total thickness of 4½ to 7 inches of durable, resilient Texaco Asphaltic Concrete was used in widening and resurfacing this section of U. S. 81.

U. S. 81 is one of Texas' principal north-south highways. It connects the city of Fort Worth with the Mexican border, where it meets the Pan American Highway. Greatly increased traffic made it necessary last year to more than double the width of a 4-mile section near San Antonio.

The method used by Texas in transforming this old two-lane highway into a four-lane superhighway will interest other road builders. A new sub-base was laid to a depth of 8 inches on each side of the old concrete pavement. Over this was constructed a plant-mixed Texaco Asphaltic Concrete foundation 6 inches thick. The old 20-foot pavement itself was covered with a 3½-inch leveling course of coarse-graded Texaco Asphaltic Concrete. Finally, a 1-inch wearing surface of fine-graded Texaco Asphaltic Concrete was laid over the full width of the new 52-foot pavement.

In modernizing this old, narrow highway, Texas takes full advantage of the resilient, durable, joint-free qualities of Texaco Asphaltic Concrete construction. Not only does this type of hot-mix asphalt paving stand up under the heaviest traffic impact for many years, but the cost of maintaining it is consistently low.

For complete information on Texaco Asphaltic Concrete construction, write our nearest office for the booklet, "Texaco Asphalt Paving—Plant-mixed Types."

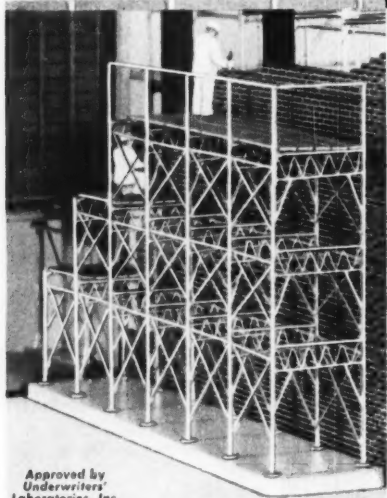


THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

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**SAVE HOURS...
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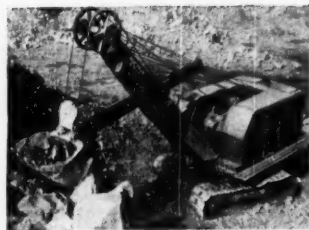
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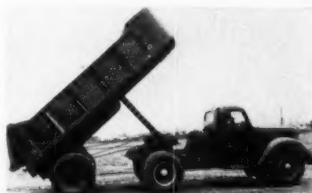
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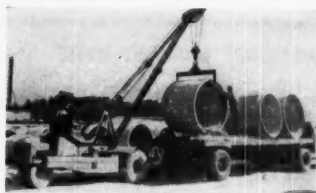
TWO-YARD EXCAVATOR—Convertible for use as crane, dragline, clamshell, or shovel service, the 51-B has a rating of 2 yd. For dragline and clamshell use, booms from 50 to 90 ft. are available. Crane booms may be purchased up to 110 ft. Additional reach for lifting crane is provided by any of several jib extensions. Contractors may choose diesel or electric power. Standard mounting offers a choice of 30- or 36-in. treads.—**Bucyrus-Erie Co.,** South Milwaukee, Wis.

BUCKET ELEVATOR—Totally enclosed bucket elevator is adaptable to use with 3-compartment bin batcher. Controlled from ground level, the elevator has a 40-ton/hr. capacity; a 1-yd. hopper capacity; and is powered by a 5-hp. electric motor or gas engine. Self-centering chute automatically extends when feeding either end bin.—**Construction Machinery Sales Co.,** Waterloo, Iowa.



CABLE-OPERATED DUMP TRAILER—Allows dumping at angles up to 60 deg. without danger of overturning or twisting the support arms. The Clement 500 features lighter body design, lower center of gravity, and a rear shackle hanger assembly position which raises the cable lines for freer movement. A self-loading fifth wheel enables operator to assemble quickly or free the trailer.—**Winch-Lift, Inc.,** First National Bank Bldg., Shreveport, La.

TRAFFIC-ZONING PAINT—Full-scale production has resumed on Porcelite traffic-zoning paint. Features claimed for this paint are: long wearing, easily applied by hand or machine, economical, and adheres tenaciously. Porcelite dries completely within 20 to 30 min. after application. — **Thomson-Porcelite Paint Co.,** Industrial Sales Division, 330 Race St., Philadelphia 6, Pa.

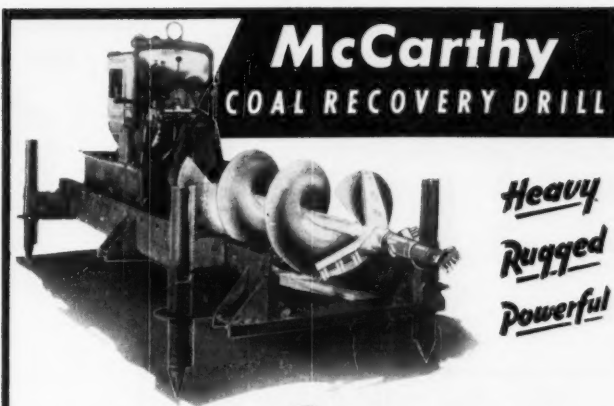


MOBILE SWING-BOOM CRANE—Features of improved Krane Kar include: Front-wheel drive, rear-wheel steer, self-stabilizing eliminating the use of jacks or stabilizers, automatic power cut-off at extreme positions of boom swinging and topping, automatic braking of load and boom lines, no tail swing, and one-man operation. Unit is available in four sizes with capacities of 1½, 2½, 5 and 10 tons. Can be equipped with gasoline or diesel engines, pneumatic or solid rubber tires, and booms from 9 to 37 ft. in length.—**Silent Hoist & Crane Co., Inc., 841 Sixty-Third St., Brooklyn 20, N. Y.**

ELECTRIC-BLASTING CAPS—Reduction of vibration from blasting operations carried on near populated areas is made possible by a new line of fractional-second-delay electric blasting caps. Instead of firing one large charge of explosives at one time and setting up one large shock wave, it is possible with the use of these caps to break up a large charge into smaller portions and fire each portion at fractional-second intervals. These new Western Minimax caps are accurately timed, are of one-piece all metal construction, and are supplied in ten periods of delay. They have plastic-covered wires and plastic shunts, and are ventless and waterproofed. Base charge is RDX.—**Olin Industries, Inc., Explosives Division, East Alton, Ill.**



NEW TRUCK MODELS—Features of the 1950 line of Chevrolet trucks include improvement in road performance through increased engine power plus advancements for added comfort and safety. The line comprises 20 series on 9 wheelbases ranging from 115 to 199 in. The Load-Master engine for heavy-duty units produces 105 hp. and 193 ft./lb. of gross or 189 ft./lb. of net torque. The Load-Master 105 engine for the light- and medium-duty trucks delivers 92 gross horsepower. Torque has been increased to 176 ft./lb. Hydovac power brakes are available for heavy-duty models.—**Chevrolet Motor Division, General Motors Bldg., Detroit 2, Mich.**



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Don't let high overburden costs choke off your profits! Let McCarthy Coal Recovery Drills side-step your problem for you. This machine is specifically built for recovering coal after further strip mining is unprofitable. It bites right into the heart of the seam, pulling out a continuous stream of clean coal all ready for loading. With each McCarthy, you get 60 to 150 tons of coal every eight hours. The total cost, including depreciation on equipment, is less than \$1.50 per ton mined, and you can profitably extract 50 to 70 percent more coal than was previously possible. See your McCarthy dealer today or write us direct for information.

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New!

THE CAP THAT DOES NOT FORGET TO CLOSE
Completely automatic — the "RAIN-CAP" is counterbalanced to open when the tractor starts and close when it stops. Rust proof—made of cast aluminum—with bronze bushing—can be installed in two minutes. F.O.B. Waterloo, Iowa.

- Immediate delivery
- Liberal Dealer Discount.

STOPS MOISTURE FROM FALLING INTO TRACTOR EXHAUST

No.	O.D. Exhaust	Retail
1	2 1/8"	\$1.90
2	2 3/8"	1.90
3	2 1/2"	1.90
5	1 1/2"	1.90
5 1/2	2"	1.90
5 3/4	1 3/4"	1.90
6	1 1/2"	1.90
6 1/2	1 3/8"	1.90
7	2 1/2"	1.90
8	3"	2.50
9	3 1/2"	2.50
10	3 3/4"	2.50
11	3 1/2"	2.75
11 1/2	3 1/4"	3.00
12	4"	3.00
12 1/2	4 1/8"	3.00
12 3/4	4 1/4"	3.00
14	4 1/2"	3.00

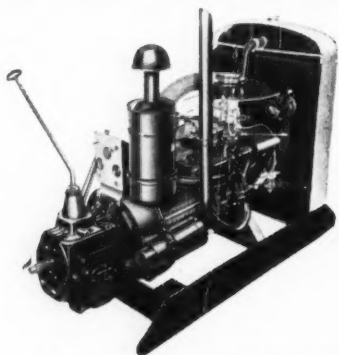
Write Dept. CM.



WATERLOO FOUNDRY CO., WATERLOO, IOWA

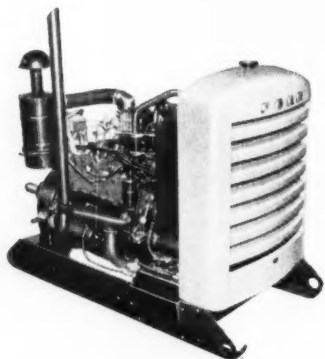
IT'S HERE...

NEW Ford "226" POWER UNIT



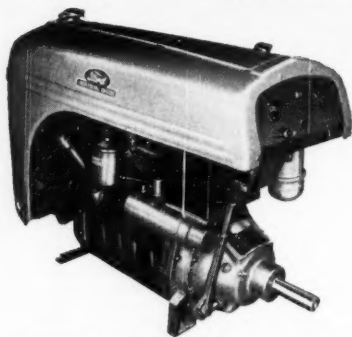
Pad mounted oil filter . . . Full length water jacketing . . . Recirculating pressure cooling system with thermostat . . . Counterbalanced crankshaft . . . Heavy duty, replaceable thin shell copper lead bearings . . . High lift camshaft . . . Balanced carburetion (downdraft or updraft) . . . Heavy duty oil bath air cleaner.

NEW Ford "239" POWER UNIT



Dual water pumps . . . Full length water jacketing *plus* . . . Recirculating pressure cooling system with thermostat . . . Fully counterbalanced crankshaft . . . Replaceable thin shell bearings . . . Moly-chrome valve seat inserts . . . Dual downdraft carburetion . . . Oil filter and air cleaner.

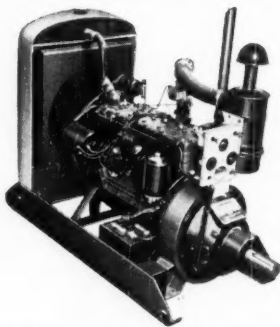
NEW Ford "120" POWER UNIT



Removable dry cylinder liners . . . 3-ring pistons, chrome top ring . . . Moly-chrome valve seat inserts . . . Circulating cooling system with thermostat . . . Replaceable thin shell main and connecting rod bearings . . . Counterbalanced crankshaft . . . Magneto or battery ignition . . . Oil filter . . . Heavy duty oil bath air cleaner.

Complete

NEW Ford "254" POWER UNIT



Pad mounted oil filter . . . Recirculating pressure cooling system with thermostat . . . Autothermic pistons with chrome top compression ring . . . High lift camshaft . . . Hard faced cobalt exhaust valve (free type valves) . . . Counterbalanced crankshaft . . . Heavy duty, replaceable thin shell copper lead bearings . . . Balanced carburetion (downdraft or updraft) . . . Air cleaner.

RIGHT for Centrifugal Pumps . . . Arc Welders . . . Air Compressors . . . Cranes and Hoists . . . Winches . . . Railway Cars . . . Generator Sets . . . Crane Loaders . . . Feed Grinders . . . Mechanical Shovels . . . Portable Sawmills . . . Portable Well Drillers . . . Farm Combines . . . Street Flushers . . . Concrete Mixers . . . Portable Grain Mills . . . Irrigation Equipment . . . Log Yards and Loaders—and many other applications.

Specifications of Ford Industrial Engine Power Units

Model	Cyl-inders	Bore and Stroke	Displ. cu. in.	Dyn. B.H.P.	Max. Torque	Equipment Available
120	4	3 3/8 x 3 3/4	120	38 @ 2400	92#' @ 1600	Clutch: SAE #5 housing; power take-off; Ford housing; 3- or 4-speed transmission; governor. (Available as closed type power unit or engine assembly.)
226	6	3.3 x 4.4	226	80 @ 2400	182#' @ 1200	Clutch: SAE #3 or #4 housing; power take-off; Ford housing; 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.)
239	V-8	3 3/8 x 3 3/4	239	85 @ 2400	187#' @ 1600	Clutch: SAE #3 or #4 housing; power take-off; Ford housing with 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.)
254	6	3.5 x 4.4	254	95 @ 2400	212#' @ 1200	Clutch: SAE #3 or #4 housing; power take-off; Ford housing; 3-, 4- or 5-speed transmission; governor. (Available as closed or open type power unit, or engine assembly.)
337	V-8	3 1/2 x 4 3/8	337	117 @ 2400	257#' @ 1600	Clutch: 5-speed direct-in-fifth transmission; overdrive transmission, direct drive power take-off. (Available as closed or open type power unit, or engine assembly.)

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POWER UNITS!

NEW Ford "337" POWER UNIT



Drop forged fully counterbalanced crankshaft, hardened journals . . . Heavy duty, replaceable thin shell copper lead bearings . . . Hard faced cobalt exhaust valves (free type valves) . . . Autothermic pistons, chrome top ring . . . Dual centrifugal water pumps . . . Full length water jackets . . . Recirculating pressure cooling system with thermostat . . . Dual downdraft carburetion . . . Oil filter and air cleaner.

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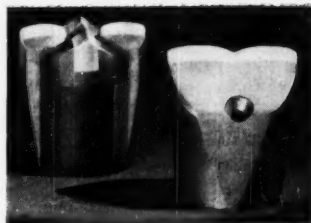
LIGHTWEIGHT CONVEYOR—

Constructed of 61ST6 aluminum alloy, the Handy-Handler weighs but 119 lb. for its lightest model. The conveyor is available in lengths from 10 to 20 ft. and can be equipped with any of three electric motors or three gasoline engines. Can be sup-

plied with rubber flights and continuous rubber belt, or steel flights and chain.—**Belt Corp., Orient, Ohio.**

CHEMICAL-RESISTANT PAINT—

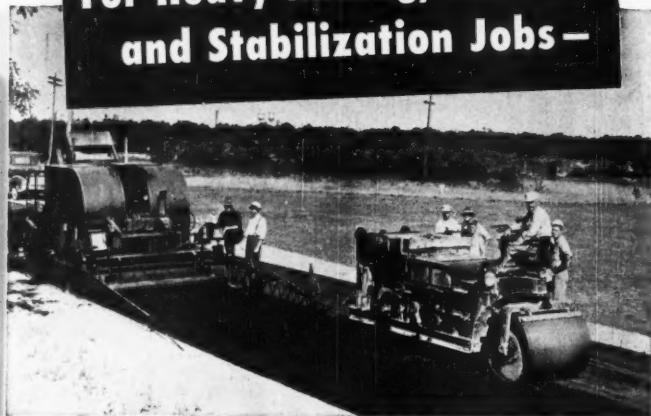
Ucilon 1701 is a chlorinated-rubber paint for use where a protective coating is desired against acid and alkali fumes, moisture, vapors, grease, and oils. It is recommended for floors, exteriors of storage tanks, structural steel, and machinery and equipment. It can be applied over old paint without priming or sandblasting. Coverage is between 350 and 500 sq.ft. per gal.—**United Chromium, Inc., 51 E. 42nd St., New York 17, N. Y.**



CROWNED CARBIDE BITS—

Crowned tungsten-carbide inserts which permit increased drilling speeds and self-cleaning chip channels are among the advanced design features claimed for Rok-Drill bits. Improved blowing has been achieved by better placement of the air holes. These detachable bits are available in two types—2-point chisel type, 1½- to 4-in. dia.; and 4-point cross-bit type, 1¾- to 4-in. dia.—**Rock Bit Sales & Service Co., 2514 E. Cumberland St., Philadelphia 25, Pa.**

For Heavy Mixing, Retread and Stabilization Jobs—

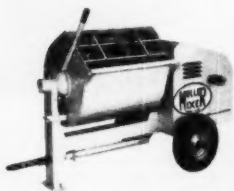


The New Heavy-Duty Moto-Paver

Although developed primarily to meet the rugged conditions of hilly and mountainous terrain, the heavy duty Moto-Paver is proving equally efficient under widely differing conditions in other sections of the country.

Wherever you have a heavy bituminous mixing, retread or stabilization job, it will pay you to investigate this new and more powerful Moto-Paver. It does the *complete mixing and laying job—in one continuous operation.* See your local distributor or write direct for specifications and complete information.

RUBBER AIR HOSES—Two new hoses are announced by Goodrich. The Type 22 has the tube and rubber made of oil-proof rubber compounds and can be used for a variety of applications besides its primary use as an air hose. Strong adhesion of cover to carcass enables the hose to withstand repeated bending and flexing with less danger of separation. Small sizes (¼ and 5/16 in.) withstand 150-lb. working pressures; the larger (¾ in.) withstands 125 lb. The other Goodrich hose is a long-length braided hose designed specifically for use as an air line in paint spray equipment. The one-braided type is made in three sizes—¼, 5/16, and ¾ in. The two-braid is available in a 7/16-in. size. Hose will withstand working pressures up to 150 lb.—**The B. F. Goodrich Co., Akron, Ohio.**



PLASTER AND MORTAR MIXER—

Three-cubic-foot plaster and mortar mixer is powered by a Model 9-R-6 Briggs and Stratton air-cooled gasoline engine through a roller chain and machine-cut gears. It has a 32-in. charging height, and a 29½-in. width. Engine house is split for accessibility to driving mechanism. Tires are 4.00x8 on disk wheels with roller bearings. Also supplied with a 1-hp. electric motor.—**Muller Machinery Co., Inc., Metuchen, N. J.**

The Moto-Paver is a very flexible as well as a mobile unit. The illustration shows it being used as a stationary mixing plant.



Hetherington & Berner Inc.

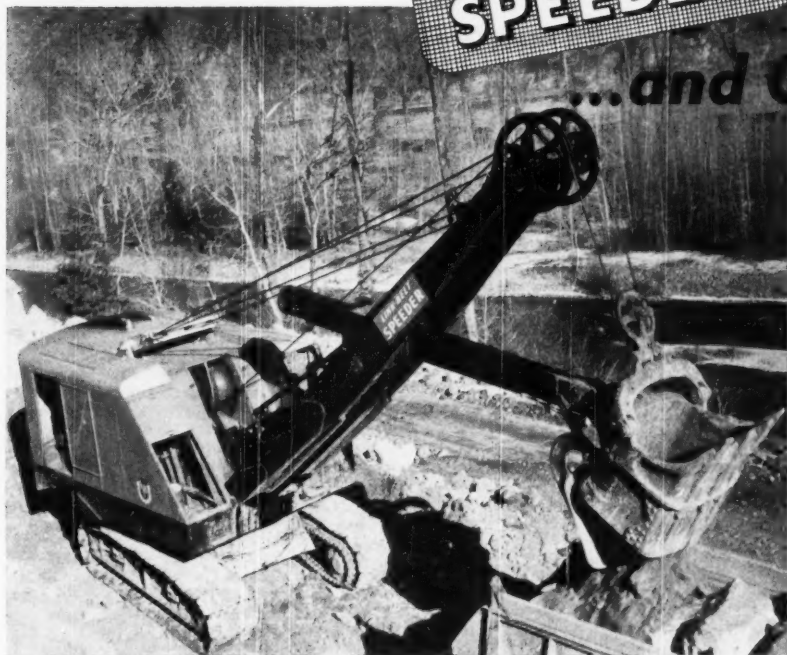
735 KENTUCKY AVENUE, INDIANAPOLIS 7, INDIANA

**DEMAND A LOT
FROM A**

**LINK-BELT
SPEEDER**

K-360

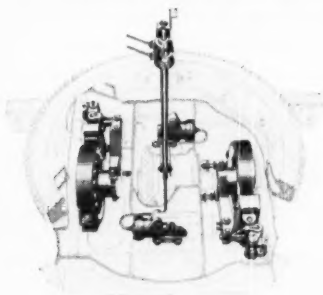
...and GET IT!



A full bucket, fast swing and more swings per hour add up to a greater output and a more profitable operation.

The capacity for high production under heavy duty service is the earmark of the Link-Belt Speeder K-360 and K-370 models. All welded construction in crawler base and machinery frame assures maximum strength

for weight, supplies the stamina to take hard service and maintain correct alignment of shafts and gears. Distinctive Link-Belt Speeder features that contribute faster, easier, safer operation include:



INDEPENDENT RAPID BOOM HOIST permits raising and lowering of boom, under control of engine power while swinging, hoisting or travelling. This adds immeasurably to maneuverability and speed of handling.

POSITIVE CHAIN CROWD controlled by the same wrist-action lever as the re-rack unit gives crowding action independent of hoist for maximum control—faster digging action, and bucket placing for dumping.

SPEED-o-MATIC HYDRAULIC CONTROLS eliminate lost motion and back-lash, permit pin-point spotting of load, give greater speed and abolish "operator fatigue," thus maintaining maximum output to the last minute of the shift.

PROPEL AND STEER CONTROL performed by two short-throw levers, each controlling the hydraulic pressure actuating interconnecting clutch and brake mechanism for one of the crawler tracks. Either track can drive or be locked independently giving the shortest possible turning radius.

LINK-BELT SPEEDER



CLEVELANDS GIVE YOU *Exactly What You Want* ON THE TRENCHING JOBS



VERSATILITY—DEPENDABILITY LONG SERVICE LIFE

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They have the Guts, the Power, the Speed, the Traction and the Maneuverability to carry through and deliver clean, straight trenches for transmission, distribution and service lines, for conduit and cable and for drainage, irrigation and building foundations. You can depend on CLEVELANDS every time because of such long-pioneered features as: Correct wide-crawler, wheel-type design—rugged all-welded construction—ample smooth-flowing power, correctly applied—a wide range of transmission-controlled speed combinations—extreme ease of operation and many other exclusive CLEVELAND features that make for MORE

TRENCH—IN MORE PLACES—AT LESS COST.

See your nearest CLEVELAND distributor for details.



THE CLEVELAND TRENCHER CO.

20100 ST. CLAIR AVENUE

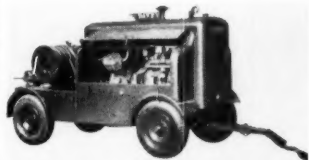
CLEVELAND 17, OHIO



EXPANDED TRUCK LINE—Expanded line of Dodge trucks consists of 356 basic gross-vehicle-weight models. Among the features announced for the new B2 series are: Electric system which assists in improved engine performance, new 5-speed synchro-shift transmission, new 5-speed synchro-shift overdrive transmission, and others. A new engine is among seven offered in the line.—**Dodge Division, Chrysler Corp., Detroit 31, Mich.**

BLIND RIVETS IN TWO TYPES—

Faster assembly and lower cost are among the advantages of the Huck PT (pull-through) and 9SP (self-plugging) blind rivets. Features include: PT rivets have no minimum grip limitations; the 9SP rivets have a grip range of 0.140 in. for any grip increment; positive shank expansion provides ample hole-filling for normal requirements; special engineering features prevent splitting of sleeve during formation of the blind head; pin tail is provided with pull grooves to assure positive driving; and pin tail is automatically ejected by the next rivet and cannot become jammed in the driving gun. These rivets are driven by one operator with a manual or pneumatic pull gun, and require access to only one side of the work. Both types are available in 1/8-, 5/32-, 3/16-, and 1/4-in. dia.; in aluminum alloys or cadmium-plated mild steel with brazier or 100-deg. countersunk heads.—**Huck Mfg. Co., 2480 Bellevue Ave., Detroit 7, Mich.**



DELUXE COMPRESSORS — New line of custom-built heavy-duty compressors will be limited to 100 per year in 105- and 210-cfm. sizes and 50 per year in 160- and 315-cfm. sizes. Features of the Air Chief AIRistocrats include extra-heavy-welded-steel, vibrationless frame, hand parking brakes, and electric service brakes. Two hose reels, each of 150-ft. capacity, are provided.—**Davey Compressor Co., Kent, Ohio.**

NEW RPM DELO OILS

cut engine wear-rate up to 85%

New RPM DELO Lubricating Oils contain advanced, special compounding. Proved in actual operation, they keep engines cleaner, increase protection and extend overhaul periods of all heavy-duty engines.

Cut liner wear rate up to 85%. In service under extreme operation conditions, these new RPM DELO Oils reduced wear-rates up to 85% over conventional heavy-duty type lubricants.

Reduced engine deposits as much as 75%. Superior compounding in new RPM DELO Oils kept top-ring grooves, oil rings, and skirt areas of pistons remarkably clean in high-temperature, high-output truck and tractor engines.

Saved 40% to 60% on maintenance. Records show that new RPM DELO Oils cut maintenance costs as much as 60%, reduced oil consumption 30% to 50% over the long run.

Proved in full range of engine service. This new line covers normal to extremely severe conditions. The grade that meets your needs will double protection against lubrication failures, give you all-around better engine performance.

RPM DELO Heavy Duty Lubricating Oil

A new, high quality-level compounded oil recommended for heavy-duty diesel or gasoline engines in normal to difficult service. (Meets U. S. Army Specification 2-104B.)

RPM DELO Special Lubricating Oil

Companion product to RPM DELO Heavy Duty Lubricating Oil. Has higher viscosity index for special operating conditions. (Also meets U. S. Army Specification 2-104B.)

RPM DELO Supercharged—1 Lubricating Oil

An entirely new product of higher quality-level than the products above. Fortified with new, more powerful compounding. Recommended for severe and abnormal engine service. (Meets U. S. Army Specification 2-104B, Supplemental List No. 1.)

RPM DELO Supercharged—2 Lubricating Oil

Highest quality-level oil, designed for extremely severe operating conditions. (Meets U. S. Army Specification 2-104B, Supplemental List No. 2, also the rigid requirements of Caterpillar Tractor Company's Superior Lubricants—Series 2.)

Send for the full report on new RPM DELO Oils. Actual test data furnished free. For complete information and the name of your nearest Distributor, write to any of the companies listed below.

Standard Oil Company of California

225 Bush Street, San Francisco 20, Calif.

The California Oil Company

Barber, N.J., Chicago, New Orleans

Standard Oil Co. of Texas

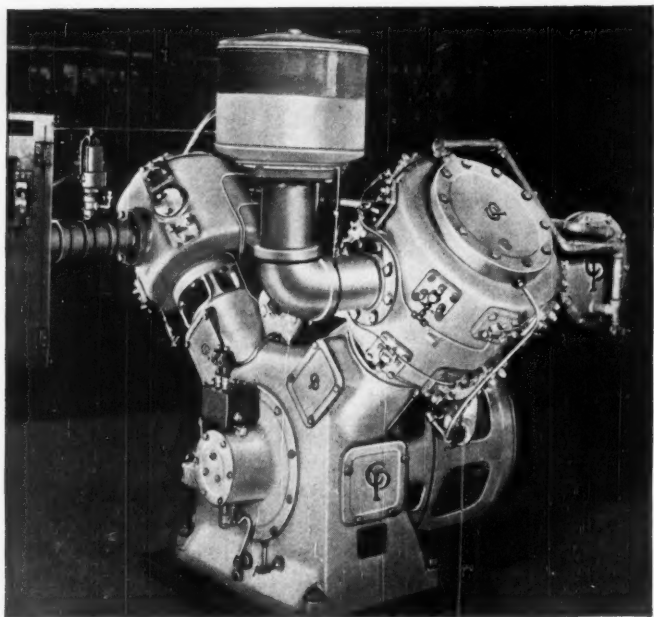
El Paso, Texas

The California Company

17th and Stout Streets, Denver 1, Colo.



*New and more
Efficient Compounding
keeps engines cleaner,
increases protection,
extends overhaul period*



here's the answer to restricted floor space —the Type Y Compressor

While its compact design makes it ideal for close quarter installation—it has plenty of other outstanding advantages.

It is shipped intact as a "package unit," ready for external connections.

It requires only a simple foundation and no special skill is needed to align and install it.

It operates at high efficiency because of such valuable features as large area Simplate valves, multi-step capacity regulation, effective inter-cooling, precision bearings and force-feed lubrication.

And finally it's extremely easy on maintenance.

Available with built-in or direct-coupled motor, or with V-belt drive, in capacities of 500 to 900 c.f.m., at 80 to 125 pounds pressure. Sizes for other pressures also furnished.

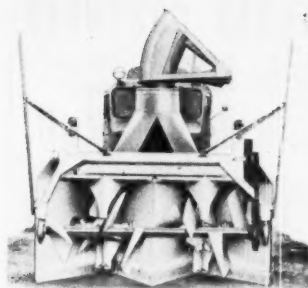
Write for full information.



**CHICAGO PNEUMATIC
TOOL COMPANY**

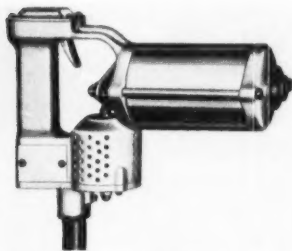
General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES



CHUTE FOR SNOW PLOWS—Loading and casting chute increases flexibility of rotary snow flows. The chute is revolving with a 270-deg. swing from side to side, permits forward casting, and when telescoped, it serves as a snow caster, throwing snow in any position with the 270-deg. arc. Chute is finger-tip controlled inside the cab. Available as standard or auxiliary equipment for Sno-Flyer rotaries.—**Wm. Bros Boiler & Mfg. Co., 1057 Tenth Ave., S. E., Minneapolis, Minn.**

ALL-STEEL JAW CRUSHER—Large, deep-frame jaw crusher measures 66x84 in. and has three-piece side frames. Features include deep-frame construction, long swing jaws which permit fast crushing to small sizes, newly designed toggles with renewable flame-hardened ends, and specially designed rod-type pitman. It is designed to close down to 8 in. and will produce, at this setting, approximately 400 tons/hr. Total weight is 578,000 lb. Crusher is driven by flat V-belt drive from a 300-hp., 600-rpm. motor. Crusher speed is 89 rpm.—**Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.**



ELECTRIC HAMMER—Self-contained Model 10 electric hammer has a 3/8-in.-dia. drilling capacity. Rectifying unit of the hammer is incorporated in the handle casting permitting direct connection to a 110-v. ac. power source. Unit weighs 11 lb. The complete line of Syntrol tools, including the new carbide-tipped tri-point star drills, are available for use with this new hammer.—**Syntrol Co., 500 Lexington Ave., Homer City, Pa.**



THE 1950 JACKSON HYDRAULIC OFFERS

Greater Time and Labor Savings, Greater Efficiency and Reliability Than Has Ever Before Been Provided In Any Concrete Vibrator for General Construction

Reaches Every Point in a 100' Circle!

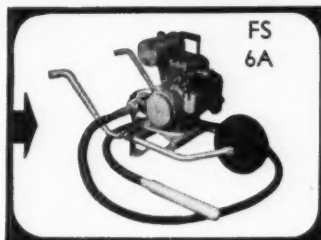
Its 50' hose eliminates many changes of location, saves time and makes the hard-to-reach places easily accessible.

7 HP ENGINE—Loads of power for continuous operation, day in and day out. 4,000 to 7,000 VPM (instantly variable) with frequency and amplitude carefully balanced to give perfect compaction under all conditions. 2 3/4" vibrator head.

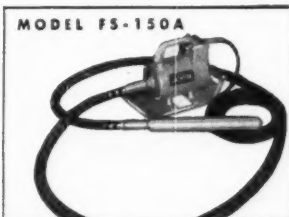
NO DAILY MAINTENANCE. All vibrator parts operate in stream of oil under pressure! **QUICKLY CONVERTED TO WET OR DRY GRINDING.** This machine will save its cost in short order.

FLEXIBLE-SHAFT VIBRATOR

Model FS-6A is the finest of the engine-driven, flexible-shaft type vibrators. Ample power (4 HP). Available with 3 heads for thick or thin sections. Shafting furnished in 7' to 14' lengths up to 28'. Grinding and other attachments. An excellent performer as proven on thousands of jobs.



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IDEAL VIBRATORS FOR EVERY TYPE OF JOB:

thin sections to mass construction — Highway, airport and municipal paving. Soil compaction. Portable Power Plants.

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18C, 30C, 50C and 80C**

• Super - Vulcan's endurance pays off for you on the job in two positive ways:

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For this powerful pile hammer maintains peak efficiency on job after tough job, year after year. That's a job tested fact. Check for yourself its simple design, easy operation, fast, positive action on less steam. It fits the same leads, uses the same accessories, as the Warrington-Vulcan Single-Acting Pile Hammers.



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Sizes
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80C meet all
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GUTTER, CURB, SIDEWALK PAVER—Self-propelled curb and gutter paver is now adaptable to integral gutter, curb, and sidewalk paving. Adaptation is made by extending the machine to the desired width and using extensions on each side of the engine. Screed and trowel are available for a large number of varying conditions. Paver is designed to meet the trend towards having sidewalks right against the curb.—**Dotmar Industries, Inc., 500 Hanselman Bldg., Kalamazoo 1, Mich.**

CAST-IRON SOIL PIPE—Superspun process of producing cast-iron soil pipe results in a uniform pipe without seams. Centrifugally cast in spinning sand molds, Superspun is of uniform diameter and thickness throughout. It is available for shipment in limited sizes. Each piece is identified by a metal band around the hub of the pipe.—**Combustion Engineering-Superheater, Inc., 200 Madison Ave., New York 16, N. Y.**



CARBURETOR-MOUNTED GOVERNOR—Centrifugal-type governor features a flexible drive shaft permitting installation of the governing unit at the carburetor, regardless of position of driving source. It receives its power input through any of four direct mechanical connections to the engine rpm. Governor can also be mounted as an integral unit of the carburetor.—**The Pierce Governor Co., Anderson, Ind.**

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5 TIMES FASTER
EASIER
THAN BY HAND**



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Use on a stiff dry mix.

Get 30% denser, stronger concrete floors.

Two models—24" and 30" wide.

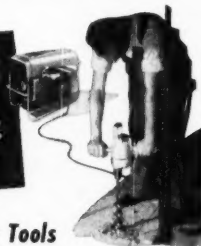
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500 Lexington, Homer City, Pa.

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**Use Electric Tools
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Speed the work, cut costs on installation and maintenance jobs. Lightweight Onan air-cooled electric plants supply electric power anywhere for lights, drills, saws, hammers, spades and other motor-driven tools. Equipped with carrying handles or dolly-mounted. Take 'em anywhere and plug in for all the power you need.

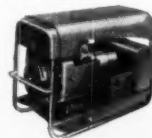
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Gasoline powered models—
A. C. 350 to 35,000 watts.
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Model 5CK, 5,000 watts D. C.
Weights only 315 lbs.

*get around
to more profits*



with **P&H** Truck Cranes

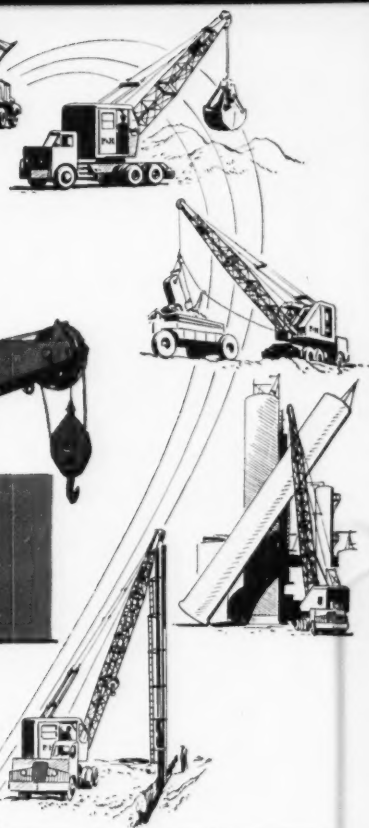
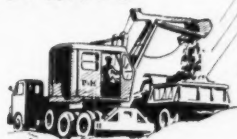
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Think of those *extra* jobs you can handle with a P&H Truck Crane... and the *extra* profits it makes possible.

The P&H Truck Crane, wholly built by P&H, truck and all, can handle a lot more on the hook... and with other front end equipment has more digging power at the tooth point.

You have dual power... an engine built for travel and a second engine for sustained hard work.

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P&H Added Values

- ♦ Hydraulic control—a new peak in operating ease and safety.
- ♦ Greater stability—with exclusive torsion bar-mounted front axle and lower center of gravity.
- ♦ Independent planetary boom hoist — raises or lowers crane boom smoothly and safely, with or without load.
- ♦ Planetary load lowering — permits "inching" of loads accurately.
- ♦ All-welded construction — greater strength.

Size for size no P&H Truck Crane has ever been outlived

P&H REMOTE CONTROL with this unit you can control all functions (even the horn) by electric push-

buttons — from the operator's position inside the crane cab,



SHOVEL

CLAM-SHELL

CRANE

GRABBER

REACH ROE

PILE DRIVER

answer man *

*Difficult problem
relating to the use
of cement?

Chances are the
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Engineer has
solved it before.

If not,
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Call him in and
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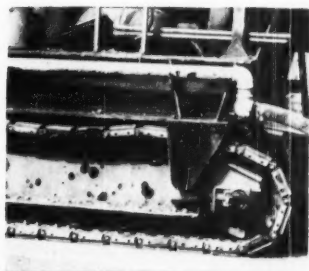
PORTLAND
HIGH EARLY STRENGTH
AIR ENTRAINING
MASONRY





IMPROVED POWER BUGGY—Improvements included on the 1950 model Power Buggy include: Increase of carrying capacity to 13 ft.; improved dumping mechanism enables operator to dump any part of the load and return bucket to position; balanced position of bucket body makes it easier to handle dumping operations; improved engine mounting; and increased traction. New-type welded-steel frame provides increased strength. Widening of load wheel base has improved stability and ease of handling of the Power Buggy.—Whiteman Mfg. Co., 3249 Casitas Ave., Los Angeles 39, Calif.

DIESEL STARTER FLUID—Available in gelatin capsules and cans, new diesel starter fluid is designed to eliminate the use of heaters and electric boosters. Where mechanism for priming is mounted on the dashboard, the fluid in capsule form is most desirable as it enables the operator to start engine without the help of a second person injecting priming fuel into the engine.—Sinclair Refining Co., 630 Fifth Ave., New York, N. Y.



RUBBER BOOTS FOR CRAWLERS—Process for vulcanizing resilient rubber to steel plates permits movement of crawler equipment over finished concrete, when these plates are bolted to the crawler pads. Metalweld uses Goodrich Vulcalock bonding process in the rubber-lining work. Rubber and steel are joined together with a bond strength of over 500 psi.—Metalweld, Inc., 26th & Hunting Park Ave., Philadelphia 29, Pa.



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Screw Jack



Low Height
Screw Jack



Ratchet Jack



Pole Pulling
Jack



General Utility
Jack



Bridge Jack



Cable Reel Jack



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JACKS

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JOB

The powerful Duff-Norton Jacks illustrated are a few selected from the world's most complete line. They answer every construction need... lift and hold heavy loads to within a fraction of an inch without danger of slipping. Best for construction and maintenance of roads, bridges, buildings, etc. For complete data on these and other dependable Duff-Norton Jacks... Write for Catalog 203.

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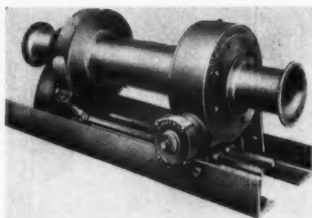
THE DUFF-NORTON MANUFACTURING CO.

MAIN PLANT and GENERAL OFFICES, PITTSBURGH 30, PA. — CANADIAN PLANT, TORONTO, ONT.

"The House that Jacks Built"

MECHANICAL SHAFT SEAL —

Positive seal—for installation on equipment moving or transferring liquids—provides mechanical means for prevention of leaks around rotating shafts. The Peerless seals are available in three general classifications—standard, abrasive-resistant, and special. Of the cartridge type, unit construction makes for easy replacement and maintenance. Maximum pressure recommended is 400 psi.; higher pressures require a special balance check. Seals can be furnished for application to all rotating shafts from ½- to 3-in. dia.—**Peerless Pump Division, Food Machinery & Chemical Corp., 301 West Ave. 26, Los Angeles 31, Calif.**



HEAVY-DUTY TRUCK WINCH —

Gear-case design of J Series of truck winches makes it impossible for winch line to become wedged between the case and drum. Gear case is built flush with the drum, and all reinforcing is inside the gear case

DRIVING EXTRA-LONG TUBULAR PILES

These 75-foot tapered, fluted, tubular piles with 20-foot extensions were driven to a minimum bearing of 40 tons each by a McKiernan-Terry No. 10-B-3 Double-Acting Pile Hammer, in constructing the new highway bridge at Spring Lake, Mich. Luedtke Engineering Co., contractors.



To insure accurate driving, as well as protection from damage during driving, a McKiernan-Terry Hammer was the contractor's choice for handling these long, costly piles.

For through the past fifty years, whether for driving timber, steel sheet, concrete or pipe piles, contractors have more and more grown to depend upon these powerful, safe-to-operate hammers to "deliver the goods".

There are ten double-acting hammers, five single-acting hammers and two double-acting pile extractors in the standard McKiernan-Terry line. This makes possible always the selection of a right hammer or extractor for any specified pile-handling conditions.

ALSO MADE BY MCKIERNAN-TERRY. The same engineering and manufacturing skill that has made McKiernan-Terry Pile Hammers so outstanding in the field of construction is applied also to bulk material unloaders, coal and ore bridges, marine equipment, cranes, bridge operating mechanisms and other important machinery of service to industry, railroads and the government.

WRITE FOR DATA. For handy reference in your files, let us send you latest literature giving full information, specifications, examples of pile-driving jobs. Send now, on your business letterhead.

ME-370 A

MCKIERNAN-TERRY CORPORATION Manufacturing Engineers 14 PARK ROW, NEW YORK 7, N.Y.

McKiernan-Terry PILE HAMMERS AND EXTRACTORS

rather than outside. Increased air space in the case enables more efficient heat dissipation. Ratio of worm and gear is 40:1, resulting in more even pull at a more desirable line speed. Angular contact ball thrust bearings are used on the one-piece worm and shaft. The J Series will include models with safe working load ratings of 6,000, 10,000, 15,000, 20,000, and 30,000 lb.—**Ramsey Winch Mfg. Co., Box 3035, Tulsa 8, Okla.**

DRAW-BAR DYNAMOMETER—

Designed for use on traction tests, the Martin-Decker draw-bar dynamometer can be used to determine horsepower, strength of structures, or in any other place where a pull or torque is to be measured. It consists of a combination indicator, recorder, and measuring element, and has a range to 50,000-lb. draw-bar pull. The recorder can be furnished in any chart speed from 2 in./hr. to 6 in./min.—**Martin-Decker Corp., 3431 Cherry Ave., Long Beach 7, Calif.**



HOPPER TRUCK HOLDS 35 YD.—

Hopper-type truck body handles 35 cu.yd. or approximately 26 tons of material. Inside dimensions are 26 ft. long x 90 in. wide. The air-operated hopper doors are 8 ft. long x 3 ft. wide, and are unlatched and closed by controls in the truck cab.

—**Marion Metal Products Co., Marion, Ohio.**



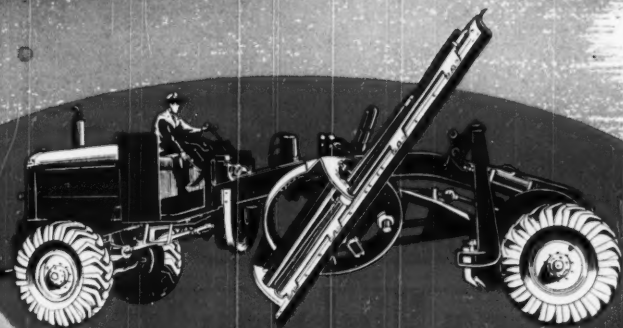
MEDIUM-DUTY TRUCK TRACTOR

—The Model 650-T truck-tractor is powered by a 6-cylinder engine rated at 140 hp. at a governed speed of 2,600 rpm. Maximum torque is 338 lb./ft. It has a heavy-duty 14-in. dry-plate Clark 5-speed transmission, with helical constant-mesh 2nd, 3rd, and 5th gears. It is geared for road speeds to 60 mph. in overdrive, but company engineers recommend a cruising speed of 55. Total chassis weight including cab is approximately 8,000 lb., of which 3,400 lb. is at the rear wheels. The safety-steel cab is 64 in. wide.—**Diamond T Motor Car Co., 4401 W. 26th St., Chicago 23, Ill.**

All-Wheel Drive and Steer—High-Lift Blade—Extreme Reach—Full Hydraulic Control

There is No Substitute
**FOR ALL-WHEEL DRIVE
AND ALL-WHEEL STEER**

"88-H"
"99-H"
Master "99"



With All-Wheel Drive, there are no idling front wheels—no dead front end to consume power and decrease operating efficiency. All weight is on driving wheels—front and rear—contributing 100% to traction and utilizing the full power of the engine.

All-Wheel Steer provides unequalled maneuverability; saves time on every job; makes it possible to work in places where ordinary motor graders cannot go—do things they cannot do.

Yes, there is *no substitute* for All-Wheel Drive and All-Wheel Steer in a motor grader... no way in which any rear drive, front steer machine can equal the maneuverability, power-at-the-blade, and all-around performance of an Austin-Western "88" or "99."

Get the complete story of the many additional features of these outstanding graders from your A-W distributor, or send for the latest bulletins. **AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U. S. A.**

Austin Western





Left to right: R. S. Over, Dale W. Detwiler and Emmert I. Detwiler, all of New Enterprise Stone and Lime Company, discuss the day's operations.

Relocating Highway in the Alleghenies

More than five miles of U. S. 220, popular north-south highway traversing mountainous central Pennsylvania, recently underwent repair and relocation between Altoona and Tyrone. Construction of the 3-lane road was handled by New Enterprise Stone and Lime Company, New Enterprise, Pa., and included the erection of four bridges. Bethlehem supplied bridge reinforcing, structural steel, dowel units and cable guard rail.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

Dowel Units • Reinforcing Bars • Bar Mats • Guard Rail
Guard Rail Posts • Wire Rope and Strand • Pipe
Hollow Drill Steel • Spikes • Bolts and Nuts
Tie-Rods • Timber Bridge Hardware
Sheet- and H-Piling • Fabricated Structural Steel



Rigged with strong wire rope, this powerful shovel swings a big bite of earth toward waiting truck. Old road is shown at right.



Bethlehem Reinforcing Bars in place in one of the road's four new bridges. These structures have spans of from 16-ft to 42-ft.



Bethlehem Dowel Unit prior to pouring. Unit can be used for contraction or expansion and holds dowels in near-perfect alignment.



Showing completed highway. Note Bethlehem Cable Guard Rail, mounted on Bethlehem Steel Posts, on both sides of the road.

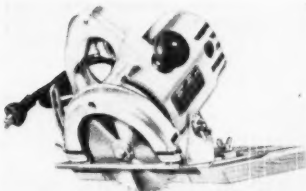


ONE-USE ROCK-DRILLING BIT

—The Spiralock rock-drilling bit has been designed for use where bit reconditioning is impractical or undesirable. Features include: Ease of putting on and taking off; square socket spirals slightly as it recedes, forming the Spiralock union which prevents the bit coming off in the hole; non-choking back face is scalloped and rounded off to prevent chips

packing behind the bit; non-rifling; simplifies preparation of drill steel; can be used with any drill steel; crowned chisel pilot for easier starting and centering; and made of Timken electric-furnace steel for fast cutting, long-lasting quality.—The Timken Roller Bearing Co., Canton 6, Ohio.

RAFTER-COMPUTING DIAL — One setting of the rafter dial provides information on lengths and angles for ten types of rafters. It is a flat instrument measuring $6\frac{1}{4} \times 8\frac{3}{4}$ in., and can be used to determine sizes for roofs with any pitch from 14 to 57 deg., in addition to standard pitches. Supplied with the rafter dial is a booklet on "Quick Tricks in Roof Design," and a job sheet for recording measurements for the roof.—Edward Weyer, 40 W. 77th St., New York 24, N. Y.



PORTABLE ELECTRIC SAW — Lightweight (11 lb.) electric saw is balanced for one-hand operation. The 6-in. Model 660 saw is powered by a 1-hp. motor and features a depth gage which adjusts to a full 2-in. straight cut; a rip guide which provides accurate control for long cuts; and a mitering adjustment, from 0 to 45 deg., with a bevel cut of 1½ in. A telescopic blade guard closes automatically. A sawdust blower keeps the cutting edge fully visible at all times. — Milwaukee Electric Tool Corp., 5316 W. State, Milwaukee 8, Wis.

NOW YOU CAN GET

Sterling WOOD HANDLE WHEELBARROWS



No. 55W — for handling sand and other dry materials. 14 ga. tray. Max. cap. 4 cu. ft.

You'll like these new, lightweight, easy-wheeling Sterlings, designed for faster material transport service. Famous Sterling balanced construction puts 80% of the load on the wheel . . . only 20% on operator. Equipped with long wood handles, formed to fit operator's hands. Steel channel legs and reinforcements are just the right height. Means less stoop for operator and greater leg clearance. Steel wheel, roller bearing wheel with pneumatic tire or zero pressure cushion type wheel, can be furnished. Write for new Wheelbarrow Catalog.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

Look for this Mark of STERLING Quality

Sterling

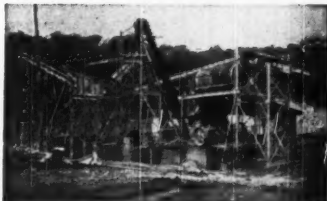
WHEELBARROWS



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Reliance

EQUIPS your JOBS



RELiance PRODUCTS

Rock Crushers, Bucket Elevators, Revolving Screens, Storage Bins, Pulverizers, Chip Spreaders, Heating Kettles, Bin Gates, Feeders, Belt Conveyors, Grizzlies, Air Separators, Sand & Gravel Spreaders, Wash Boxes.

Rather than face the delay and expense of rail or highway shipments of crushed stone, gravel and sand, install your own plant and save both time and money.

tors who are making money and rushing their work with RELiance Equipment.

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Quality products still available at moderate cost.

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Kingston, N. Y., U. S. A.

DISTRIBUTORS IN ALL PRINCIPAL CITIES OF U. S. A.



When the World Needs a Lift

UNIT 357 on "earth moving" job, lifting globe into position at Midwest Fair exhibit.

It Picks a UNIT to do the Job!

Yes... it's really amazing what you can do with a UNIT Crane or Excavator. Take a UNIT 357 Mobile Crane, for example. It travels anywhere! Any time! Powered by ONE engine... controlled and operated by ONE man. Compact, it has light-truck mobility — the smoothest operating and easiest handling crane made. Works efficiently even in small yards where space is limited. FULL VISION CAB gives operator complete visibility in all directions.

UNIT 357 is self-propelled... mounted on six pneumatic tires... duals on the rear... singles on the front. Balanced weight distribution keeps entire undercarriage on ground while working. Dimensions meet all highway requirements. Get the complete UNIT 357 story. Write for bulletin.

UNIT CRANE AND SHOVEL CORP.

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CRANES • TRENCHES • MAGNETS

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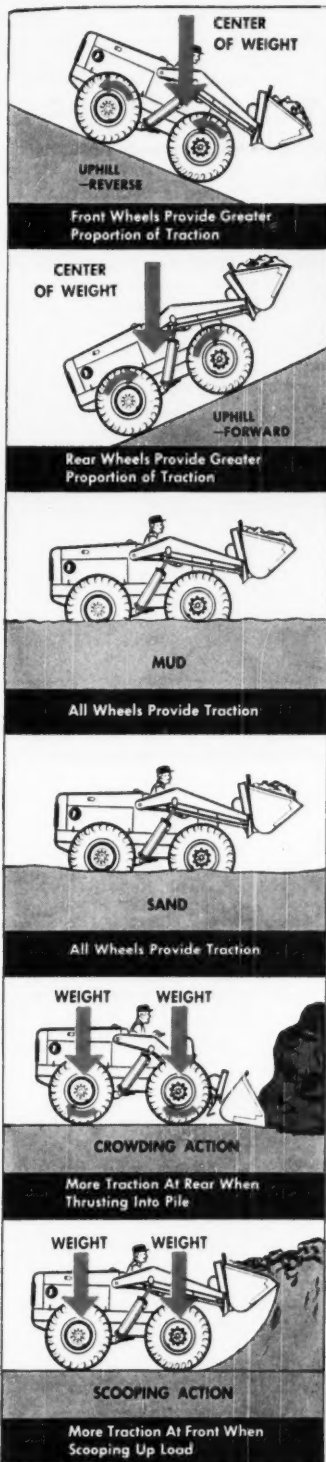
New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

PAINT SELECTION CHART—Helps in determining the proper paint product to meet specific requirements. It lists type of surface to be painted and the various types of paints available. After each paint product, the chart provides information on its application over rusty or damp surfaces, brush and spray ability, recommended primer, physical and chemical properties, drying time, thinner, average coverage, average material cost, and the number of colors in which it is available. Also included is a check list for comparing the characteristics of the various products for specific requirements.—**The Wilbur & Williams Co.**, 43 Leon St., Boston 15, Mass.

SHOVEL CRANES—Catalog 2356 (16 pp.) describes the ½-yd. LS-51; Catalog 2312 (16 pp.), the ¾-yd. LS-71. Catalog 2356 features a description of the hydraulic controls made possible by the use of the exclusive Speed-o-Matic controls. Also described are the all-welded lower frame, convertability to all front-end attachments, independent chain crowd, independent boom hoist, and other design features. Charts and drawings show dimensions, capacities, and brief specifications. Bulletin 2312 features the use of many photographs and concise text pointing out the features and advantages of the LS-71 as a shovel, crane, dragline, or trench hoe.—**Link-Belt Speeder Corp.**, 307 N. Michigan Ave., Chicago 1, Ill.

SEVEN WAYS TO MIX, PLACE CONCRETE—Dumcrete folder (8 pp.) lists seven new ways to mix and place concrete at lower cost. The folder, No. L-107, describes several types of jobs including housing, paving, industrial, tunnels, bridges, canals, and sewage treatment plants where scattered pours of concrete were required. In each case, Dumcrete bodies were used to haul the centrally mixed concrete from pre-mixing plant to the job. Job details and an action photograph are contained for each project.—**Maxon Construction Co., Inc., Dumcrete Division**, 131 Ludlow St., Dayton 2, Ohio.



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with 4 Wheel Drive!

Here is an entirely new experience in earthmoving — an entirely new conception of the work capacity and job capacity of a rubber tired tractor shovel. Here is an entirely new tractor shovel—revolutionary in design—revolutionary in performance.

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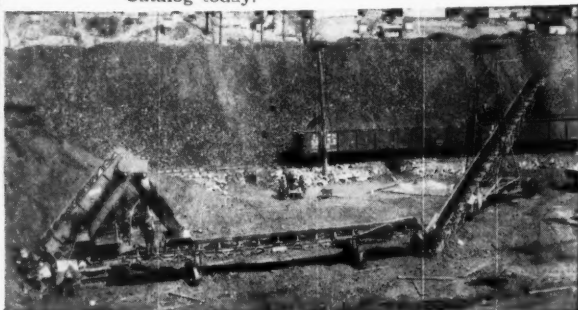
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CAR UNLOADERS

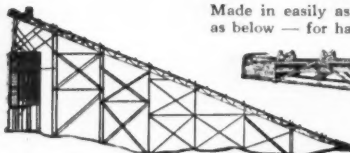
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RESIDENTIAL CONSTRUCTION—Construction of mass housing using the Normac method is discussed in 8-p. brochure. The Normac process utilizes production-line methods to manufacture lightweight precast concrete wall and roof sections. Advantages include low cost, durability, and ease of erection. The bulletin illustrates construction details, features of erection, versatility of design, and engineering data.—Normac, Inc., 7839 Santa Fe Ave., Huntington Park, Calif.

PRESSURE-VESSEL ACCESSORIES—Engineering data and specification details on pressure-vessel accessories are included in 64-p. Catalog 9-49. Items listed include welding necks, manways, nozzles, covers, rings, studding outlets, saddles, fittings, and other press-formed specialties. Data cover dimensions, pressure ratings, code specifications, construction details, and service recommendations. Also included is a handbook reference section of technical information.—Lenape Hydraulic Pressing & Forging Co., P. O. Box 179A, West Chester, Pa.

SIGHT-CONSERVATION PLAN—Brochure describing sight-conservation programs in industry is entitled, "Improved Industrial Vision, A Bonus for Management, A Benefit for Employees." The publication features case histories and charts demonstrating the cost-saving values of a safety and visual-efficiency program. The booklet lists several reasons, aside from humanitarian values, for inaugurating a program; proof of the need for eye care; the results attained by workers with improved vision; and how the plan has worked in several industries.—American Optical Co., Southbridge, Mass.

CORE-DRILLING EQUIPMENT—"Joy Core Drill Supplies and Equipment" is the title of a new catalog on auxiliary core-drilling equipment. This 36-p. catalog, Bulletin D-18, contains illustrations and specifications for a complete line of core barrels, bits, drill rods, and other equipment necessary for diamond core-drilling operations. (When requesting bulletin, state type core drill on which equipment will be used.—Joy Mfg. Co., Henry W. Oliver Bldg., Pittsburgh 22, Pa.)

VITRIFIED-CLAY LINER PLATES—Installation of vitrified-clay liner plates is explained in 6-p. pamphlet. Detailed descriptions are provided for joining, bonding, and anchoring of clay liner plates for concrete pipe and masonry sewers, drains, sewage-treatment tanks, and other projects.—The Robinson Clay Product Co., 65 W. State St., Akron 9, Ohio.

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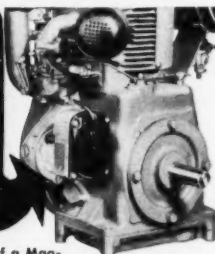
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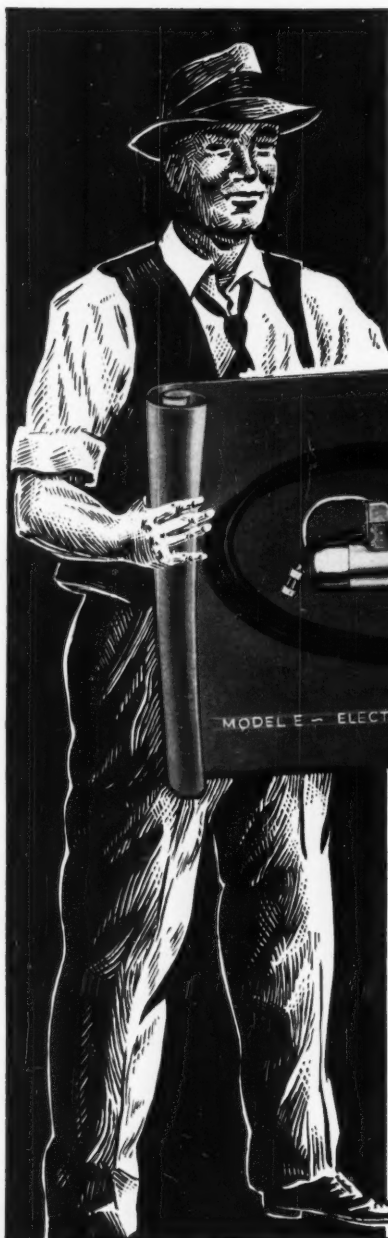
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SILENT-CHAIN DRIVES—New catalog serves as a guide for selection of the proper silent chain and chain drives for a particular application. Selection consists of three steps. (1) Apply the Service Factor to obtain required horsepower rating; (2) refer to selection table meeting the hp. rating and driver speed; and (3) locate the nearest rpm rating under driven speed and note the proper stock-drive number of the chain drive in the tables.—**Whitney Chain & Mfg. Co., 222 Hamilton St., Hartford 2, Conn.**

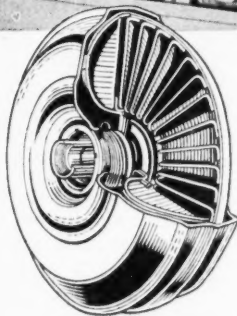
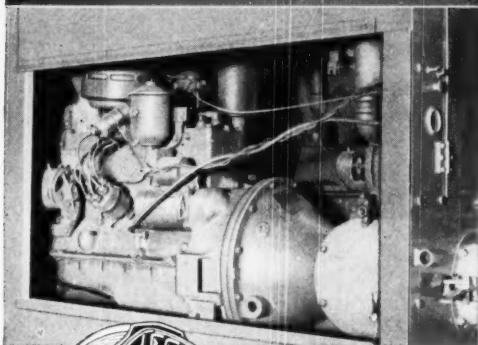
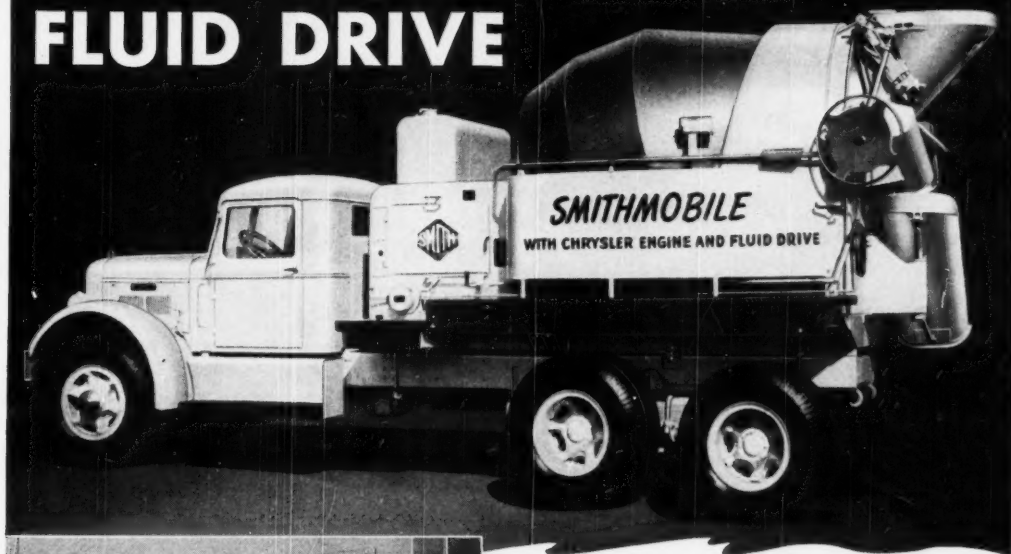
SPIRAL-WELD PIPE—Features of spiral-weld pipe include light weight, great strength, and tremendous economy in laid cost. Bulletin 493 (4 pp.) contains tabulated data on the complete line including pipes with diameters from 6 to 36 in. The data cover wall thickness, bursting pressure, test pressure, and theoretical weight per ft. Also listed are light wall fittings and steel flanges for the Taylor spiral pipe.—**Taylor Forge & Pipe Works, P. O. Box 485, Chicago 90, Ill.**

ARC-WELDING ACCESSORIES—Twenty-page catalog contains descriptions, specifications, and prices of more than 150 arc-welding accessories. Bulletin GEC-253A includes information on electrode holders, helmets and goggles, tungsten electrodes, all types of protective aids and clothing, electrode carriers, cable connectors, ground clamps, brushes, cleaning tools, fillet weld gage, and others.—**General Electric Co., Apparatus News Bureau, Schenectady 5, N. Y.**

CORROSION-INHIBITIVE PAINTS—Several of the latest-type corrosion-inhibitive paint formulations for the protection of iron and steel are included in Red Lead Technical Letter No. 4. Detailed formulations of high-performance synthetic vehicle paints are presented for marine atmospheres, intermittent salt water immersion, and continuous salt-water submersion.—**Lead Industries Assn., 420 Lexington Ave., New York 17, N. Y.**

LOAD-TRANSFER ASSEMBLIES—Accessories for concrete pavement-joints listed in this catalog include stress-reducing supports, center support dowels, non-corroding dowels, self-adjusting assemblies, and self-anchoring assemblies. Bulletin describes action of load-transfer assemblies; describes the action of concrete pavements which make their use necessary; illustrates damaging concrete stresses; discusses long vs. short dowels; and contains other pertinent data.—**Richmond Screw Anchor Co., Inc., 816 Liberty Ave., Brooklyn 8, N. Y.**

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bility and maneuverability enable it to deliver the consistently high output they need. Proper weight distribution, smooth walking mechanism and easy control all contribute to outstanding production records wherever this versatile walker goes to work. Boom lengths on larger machines up to 250 feet; bucket capacities to 25 cubic yards.



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32M49

SHOVELS, CRANES, DRAGLINES

—Complete line of Lima shovels, cranes, draglines, and pull-shovels are briefly described in a 4-p. folder. Models described are the 34, 802, 1201, 604, 1002, and 2400 units. For each unit, there is an illustration of it in use and a brief description of its features, capacities, and advantages. A table of specifications lists capacity of dipper, length of boom or dipper handle, height of gantry, dimensions of the crawlers, travel speeds, and working weights.—**Lima Shovel & Crane Division, Lima-Hamilton Corp., Lima, Ohio.**

PIPE AND CABLE DETECTOR—

Electronic equipment for detecting buried cable and pipe is listed on a new data sheet which features an illustrated description of how the equipment is used on a wide variety of jobs, such as locating metallic hazards in the path of excavators, start of street or field surveys, etc. The sheet also contains prices and brief descriptions of the various M-scope equipment.—**M-Scope Service, P. O. Box 583, San Jose, Calif.**

WELLPOINT SYSTEMS—

Dewatering equipment for use on various types of construction projects are described in detail in 64-p. catalog. Equipment listed includes wellpoints, pumps, parts, and fittings. Feature of the catalog is a series of large on-the-job photographs showing Moretrench equipment in use on various projects. Accompanying these photographs is a general description of the job and the particular problems each presented.—**Moretrench Corp., 90 West St., New York 6, N. Y.**

HYDRO-DRILL JIBS—

New bulletin describes the Joy Hydro Drill jib—a mounting to carry standard rock drills on either regular drill feeds or on long chain feeds. Bulletin illustrates and describes the jib in use on trucks and on tunnel jumbos. Also described, is use of jib in drilling holes for highway mud-jacking or sub-sealing.—**Joy Mfg. Co., Henry W. Oliver Bldg., Pittsburgh 22, Pa.**

GLOBE AND ANGLE VALVES—

Circular 101 describes bronze globe and angle valves equipped with renewable composition disks. The folder is illustrated with photographs showing construction features of these valves recommended for services up to 150-lb. steam, or 300-lb. cold water, oil, air, or gas. A large blow-up of a sectional drawing of the Kennedy Figure 89 gives visual reference and explanation of the valve. A table of available sizes and dimensions is also included.—**The Kennedy Valve Mfg. Co., 1021 E. Water, Elmira, N. Y.**

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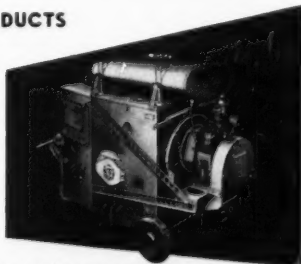


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HYDRAULIC VALVES — Narrow face-to-face valves (50 lb.), designed particularly for rugged hydraulic service, are described in 12-p. catalog. Also described are various types of valves and controls, and stuffing boxes which include plain, lubricated, lubricated with purge connections, and the rotary seal.—R-S Products Corp., Wayne Junction, Philadelphia 44, Pa.

DRAGLINE BUCKETS—Some very practical suggestions as to proper digging methods to produce greater yardage are contained in a 16-p. booklet about the Page automatic dragline bucket. For example, here is one of its suggestions: "The modern dragline machine, to be the dirt mover to justify its cost, must have a bucket that will start digging in the moment it is pulled forward by its load line. It must take its bite immediately to such a depth as will load the bucket within one or two lengths of the bucket. When this bite has been attained, the bucket must automatically continue this bite without going deeper until the full bucket load is obtained, and in obtaining a full load, the bucket must be so designed that the material will pass into the bucket rather than be pushed ahead of it, thus forming a windrow. The bucket must be designed so it will be possible, even well out under the boom point, to lift the bucket without excessive spilling. The bucket must be capable of being carried to the dump without dribbling the load while being swung to the dumping point. It must dump promptly when the load line is slackened to such an angle that all of its load will discharge without striking the bucket arch. The teeth on the bucket should be set at such an angle that they will aid in digging and will not act as rake teeth."—Page Engineering Co., Clearing P.O., Chicago 38, Ill.

PAVING BREAKER—Air-operated Model RC-80 paving breaker is described in detail in Bulletin RC-949. Feature of bulletin is a cutaway drawing showing the component parts of the breaker. Photographs show the tool in use, text describes its principal features of operation, and a condensed specifications table lists its principal dimensions.—Cleco Division, Reed Roller Bit Co., P. O. Box 2119, Houston 1, Tex.

BLOW TORCHES; SOLDERING PRODUCTS—Complete line of soldering products is listed in 24-p. Catalog 85. These include gasoline and kerosene blow torches, self-generating alcohol blow torches, electric soldering irons, solder, splicer's furnaces, paraffin supplies, and others.—P. Wall Mfg. Co., 268 Erie St., Grove City, Pa.

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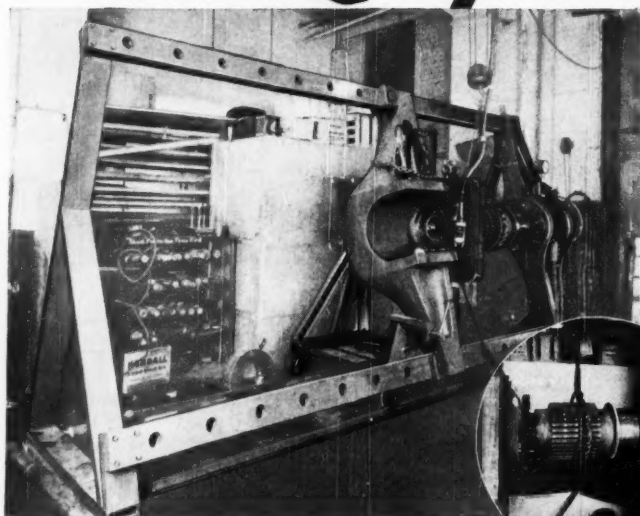
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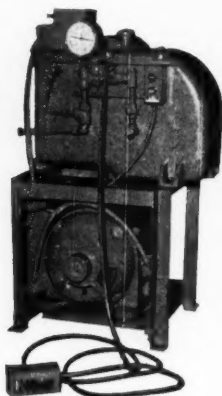
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HYDRAULIC POWER EQUIPMENT

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For full details and specifications on the complete line of Rodgers Forcing Presses send for Catalog 315.



FLOODLIGHTS AND REFLECTORS—More than 100 Red Cap floodlights and reflectors are listed in 46-p. catalog. Information presented lists accessories, repair parts, and complete installation and operating data. A condensed version of Catalog FL-49 is also available.—S&M Lamp Co., 119 W. 36th Place, Los Angeles, Calif.

SMOOTH-CEILING SYSTEMS—Special system uses a steel grillage that eliminates flared column capitals, drop panels, and beams. Bulletin 49 (8 pp.) shows numerous buildings in which this type of construction has been used, as well as describing test slabs and the results achieved with various test loads.—Smooth Ceilings Systems, 802 Metropolitan Life Bldg., Minneapolis 1, Minn.

UTILITY DITCHER—Eight-page color bulletin lists features of the Buckeye Model 306 utility ditcher. Various applications for this unit are treated photographically in Bulletin 306. Another feature of the catalog is an illustrated description of the component parts of the ditcher which account for its operational advantages.—Gar Wood Industries, Inc., Findlay Division, Findlay, Ohio.

WORTHINGTON BULLETINS—Three new bulletins have been released by Worthington. Bulletin R-1700-B1 describes the Worthington Mixer-Ejector for grouting operations; Bulletin H-1200-B40 describes a line of paving breakers and sheeting drivers; and Bulletin H-1200-B41 describes equipment for maintenance of railroad rights-of-way.—Worthington Pump & Machinery Corp., Construction Equipment Sales Division, Holyoke, Mass.

BALL BEARINGS FOR CONVEYORS—Five distinct types of self-sealed and lubricated-for-life ball bearings for belt and trolley conveyors are listed in a 16-p. catalog. This catalog is illustrated with line drawings and numerous photographs of installations. Accompanying these illustrations are performance records for each installation.—New Departure, Division of General Motors Corp., Bristol, Conn.

CORROSION-RESISTANT CEMENT—Chart indicates the resistance of both resin and silicate cements to various corrosive chemicals. Cements listed include Pennsalt PRF, Asplit, Causplit, Pennsalt HF, and Penchlor Acid Proof. Chart shows resistance of each of these cements to a list of 259 chemicals and chemical compounds.—Pennsylvania Salt Mfg. Co., Special Chemicals Department, 1000 Widener Bldg., Philadelphia 7, Pa.

Ramset Fastening System
Cost comparison sheet for *Central Company*

This form is provided for estimating costs on any job with RAMSET FASTENING SYSTEM as compared with present methods and to indicate possible savings with RAMSET. In estimating fastening time with present system, use actual type of workmen doing the work, including making fastener hole, setting plug and attaching fastener.

Use same method for RAMSET, which will ordinarily be less because the fastener itself is set in one operation. Materials cost for present method should include plug and nut or screw, and for RAMSET should include both fastening charge and the fastener itself.

Present Method		Ramset System	
NO. OF FASTENINGS	1480		365
TIME REQUIRED	365 HOURS		87.60
COST AT \$2.40 PER HOUR	\$876.00		355.20
CO.	148.00		442.80
TOTAL COST	1024.00		581.20
COST SAVED WITH RAMSET SYSTEM			57
SAVED PER FASTENING WITH RAMSET SYSTEM			39
TIME SAVED WITH RAMSET SYSTEM			328.5 HOURS
			90%

These cost reductions do not include hauling or setting time of air drills, electric drills, compressors, electric tools, wear and tear on drills, equipment, etc.

Because of the light weight and portability of RAMSET Tools, no hauling or setting time is required—the operator himself carries RAMSET Tools from job to job.

Form No. 41
JUNE 11-50

57% SAVED with Ramset
FASTENING SYSTEM

compare your fastening costs...
see what Ramset can save...

If you fasten or anchor work into steel, concrete, masonry or other hard materials, use RAMSET's free Cost Comparison Sheet and see for yourself what you can save with RAMSET. Just fill in your figures and compare slow, costly, laborious drilling, chipping, plugging and tapping with lightning fast, simple, economical RAMSET FASTENING SYSTEM.

Less than a minute, from start to finish, is needed to set any one of 65 different RAMSET drive pins or threaded studs. Simply READY! the light, portable RAMSET Tool, place the tool against the work—and RAM! The fastener is SET instantly, tightly, easily!

See for yourself how RAMSET SYSTEM can save you time and money. Call your local RAMSET representative today or ask us for details and free Cost Comparison Sheets.

Stemco Corporation • Cleveland 16, Ohio

Ramset System
SAVES TIME . . . CUTS COST
ON JOBS LIKE THESE:

Fastening—

- Metal framework to walls, floors and ceilings.
- Supports to concrete, brick and steel.
- Wood sills to concrete.
- Metal roofs or walls.
- Wiring and conduits.
- False ceilings and lighting fixtures.

FASTEN FASTER, EASIER, CHEAPER WITH RAMSET



MASTER COST-SAVING EQUIPMENT—FOR IMMEDIATE DELIVERY



Gas or Electric Concrete Vibrators
(Catalog No. 689)



Hand Tools for operating from all
Master Vibrators and BIG-3
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BIG-3 for Generation,
Tool Operation and
Concrete Vibration
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Portable Gas-Electric
Generator Plants, Sizes 500 to 17000
Watts (Catalog No. 594)



General Purpose
Floodlights



"Power-Blow" Electric
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(Catalog No. 688)



Gas or Electric
Back-Fill Tampers
(Catalog No. 699)



Vibratory Concrete Finishing Screed, Sizes 6' to 36'
(Catalog No. 596)



"Turn-A-Trowel"
for travelling
concrete
Sizes 48" or 34"

(Catalog
No. 685)



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DAYTON 1, OHIO

SALES AND PARTS SERVICE

A department devoted to manufacturers' activities involving the sale and distribution of products and parts, and service facilities. Designed to give the reader information that will enable him more readily to purchase products and parts and to service his equipment.

Distributor Appointments

Stow Mfg. Co.—Construction & Equipment Division of Syracuse Supply Co. will handle complete line of concrete vibrators, accessories, and screeds in central New York area.

Davey Compressor Co.—Frost Machinery Co., Ltd., Winnipeg, Canada; Hennessey-Forrestal Machinery Co., St. Louis, Mo.; and Rosholt Equipment Co., Minneapolis, Minn.

Diesel Div., GM.—Colorado Builders' Supply Co., Casper, Wyo., for Series 71 engines.

W. A. Riddell Co.—Stockberger-Seastrom, Inc., Indianapolis and Fort Wayne, for Warco motor graders and Hercules road rollers in state of Indiana, except the extreme northwest-ern counties.

The Galion Iron Works & Mfg. Co.—Road Materials & Equipment Co., Inc., Jackson, Miss., all counties in state except those north of Bolivar, Sunflower, Leflore, Carroll, Montgomery, Webster, Clay, and Lowndes; Wester Equipment Co., Boise, Ida., all counties south of the county of Idaho plus Oregon counties of Wallawa, Baker, Union, and Malheur, and the county of Teton in Wyoming.

Nordberg Mfg. Co.—Six new distributors: Al-Pac Engine & Equipment Co., Seattle, Wash.; Atlantic Engine Supply, Inc., Boston, Mass.; Bolinders Co., Inc., New York, N. Y.; H. G. McKinney & Co., Wilmington, Calif.; Northwest Distributors, Ltd., Vancouver, B. C., Canada, and J. N. Bernam Co., Miami, Fla.

Hyster Co.—A. & W. Engineering Co., Miami, Fla., for 17 counties in southern Florida; Wrenn Bros., Charlotte, N. C., for South Carolina, southern part of North Carolina, and most of Georgia; and King & Kringel Machinery Corp., Denver, Colo., for all of Colorado, most of Wyoming, and the western part of Nebraska.

Durisol, Inc.—Builders Lumber & Supply Co., Trenton, N. J., for central New Jersey; Haneway Associates, for eastern Pennsylvania, Delaware and southern New Jersey; and

(Continued on page 128)

You Can't Beat Welded Construction



WELLMAN Williams Type BUCKETS

Wellman pioneered welded rolled steel construction for longer life and greater service. It's the extra strength that gives the extra, low-cost digging power. Whatever your requirements... whether for Multiple Rope, Power Arm, Dragline, Power Wheel or Special Service—specify Wellman $\frac{3}{8}$ to 16½ yd. capacity.

SEND FOR BULLETIN

THE WELLMAN ENGINEERING CO.
7017 CENTRAL AVENUE • CLEVELAND 4, OHIO



Stanolube HD Motor Oil

↑
After 4500 hours
of heat, dust, and heavy loads

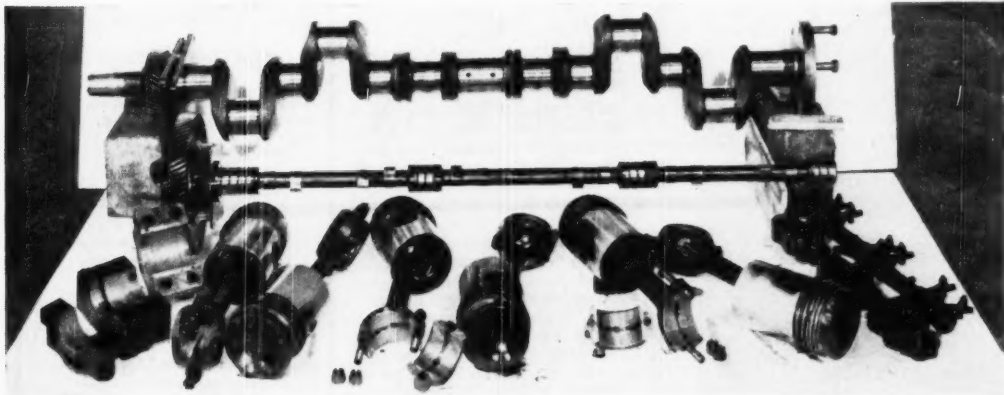
Engines look
like this
↓

● These vital Diesel engine parts have put in 4500 hours of hard work on dusty, hot, and heavy earth-moving jobs. The parts are shown just as they came from the engine. They are entirely free from deposits that would interfere with satisfactory operation, although they have not been cleaned.

Here's visible evidence of superior lubrication by Stanolube HD Motor Oil! The benefits of this clean and protective lubrication have meant important savings for the Central Construction Company, Indianola, Iowa. Each of 32 Diesel units—used by this company for grading and earth moving—has been operated for nearly 4500 hours during two seasons of work. *No overhauls have been required.* There has been no downtime due to lubrication troubles.

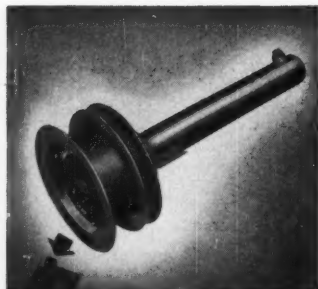
Consider the Stanolube HD benefits obtained by the Central Construction Company in the light of your own fleet operations. Under severest conditions of service, this heavy-duty lubricant will keep your fleet engines clean, free from corrosion, and protected against wear. A Standard Oil Automotive Engineer will help you make the most effective use of Stanolube HD.

Write Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.



STANDARD OIL COMPANY (INDIANA)





RUD-O-MATIC MAGNET REEL-TAGLINE COMBINATION

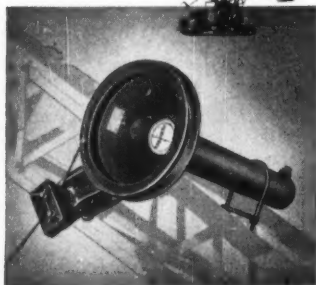
Rud-o-Matic Combination Magnet Reel-Tagline saves costly electric cable on overhead and boom crane magnet pick-up jobs. Steel tagline cable takes the load. Protective slack is maintained on electric cable. Models to fit your need.

Boom Crane or
Overhead Crane
Clam Shell Bucket
or Magnet Pick-Up

RUD-O-MATIC
TAGLINE CONTROL
is your
answer!

RUD-O-MATIC TAGLINE

holds the bucket steady at any angle of the boom. Heavy duty torsion coil spring assures constant tension at all times, at any length of cable run-out. Easily installed. Interchangeable for use on equipment of similar size. 8 models for various bucket sizes.



McCAFFREY-RUDDOCK Tagline CORP.
2131 EAST 25th STREET - LOS ANGELES, CALIFORNIA

(Continued from page 126)
Post Products, Boston, Mass., for the entire state of Massachusetts.

Caterpillar Tractor Co.—Crater Lake Machinery Co., Klamath Falls, Ore., to succeed Reed Tractor & Equipment Co., in south-central Oregon and portions of California.

New Sales Representatives

Fairbanks, Morse & Co., Chicago: T. E. Woodruff appointed assistant manager of pump sales division with headquarters in Chicago.

Porter Cable Machine Co., Syracuse, N. Y.; S. M. Jankowski appointed district sales representative in western Massachusetts and eastern Vermont and Connecticut. Homer R. MacBain named district sales representative for state of Maine.

A. Leschen & Sons Rope Co., St. Louis, Mo.: Arthur A. Leschen elected president and Douglas W. Vernon named vice-president and general manager directing activities of sales department.

Schild-Bantam Co., Waverly, Iowa: G. O. Britton appointed sales manager. Mr. Britton comes to Schild Co. from Athey Products Corp. where he served as sales manager. The Schild-Bantam Co. manufactures a 1/3-yd. convertible truck mounted power shovel with interchangeable booms and buckets.

Borg-Warner Corp., Chicago: Frank J. Nugent appointed sales manager of heating equipment, Ingersoll Steel Division.

W. A. Riddell Corp., Bucyrus, Ohio: Frank Thompson appointed district representative in the southeastern states with headquarters in Atlanta, Ga. He will work closely with distributors of Warco graders and Hercules road rollers on all phases of sales and service.

Gulf Oil Corp., Pittsburgh, Pa.: Andrew Brice named assistant general manager of contractor market sales. The position was newly created in the firm's reorganization of its domestic marketing department.

Minneapolis - Honeywell Regulator Co., Belfield Valve Division is adding to its field sales staff. Assigned to full time on regional valve sales are: Russell A. Schlegel for eastern region, with headquarters in New York; George Brown, for central region with headquarters in Cleveland; Robert Scott in Midwest and Northwest regions, with headquarters in Chicago; William Clements in Pacific, North Coast and Mountain regions with headquarters in Los Angeles.

(Continued on page 131)

NEW! Heating Unit for Winter Jobs

- Ideal for Concrete Work
- Quickly Thaws Out Materials
- Over One Million B.T.U. Output

**Behlen
HEAT
BLOWER**

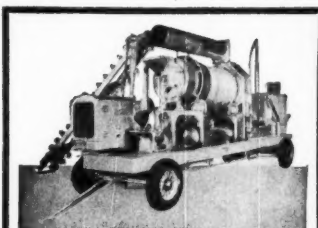


\$407

FOB—
Columbus, Nebr.

A sturdy, dependable heating plant. Has many construction uses. Recommended for concrete work in low temperatures. Warms aggregate at batching plant; prevents freezing concrete while setting. Just the thing for drying and curing plaster or paint and other such jobs. Preheats machinery. Burns 1 to 9 gals. distillate or kerosene an hour; furnishes up to 1,100,000 B.T.U.'s direct heat per hour. Built-in fan delivers up to 7,000 CFM at 1/2 inch water pressure or 5,000 CFM at 5 inches pressure up to 250°F output. Gasoline or electric motor furnished if desired. Adjustable outlet pipe is removable for adapting to fit job. Mounted on skids. Used on Federal and private construction. Almost 3,000 in use on farms dehydrating corn. Beat weather delays . . . write, wire for full information . . .

BEHLEN MANUFACTURING CO.
DEPT. 8 COLUMBUS, NEBR.



PORTABLE ASPHALT PLANTS

Complete units for pavement maintenance. Capacities—4, 8, 12, 25 tons per hour.

Other Products

CONCRETE VIBRATORS

Gasoline Engine and
Electric Motor Driven Models

HEATING KETTLES

for Asphalt and Tar

AGGREGATE DRYERS

for Stone and Sand

FRONT END LOADERS

for Industrial Tractors

WRITE FOR CIRCULARS

White Mfg. Co.

ELKHART

INDIANA

are businessmen

COLD-

BLOODED?



OF COURSE NOT! Literally, their normal body temperature is 98.6—same as laborers, engineers or any other group of people. And, figuratively, they're no more, or no less, cold-blooded—as a group.

We all know unreasonable generalizations can be dangerously false. Common sense and on-the-job experience show us the value of dealing specifically with ideas, problems—and *people*.

Let's not make the big—and costly—mistake, then, of generalizing on religious or racial groups. Adopt and *carry out* these common sense principles:

1. Accept—or reject—people on *their individual worth*.
2. Don't listen to or spread rumors against a race or a religion.
3. Speak up, wherever we are, *against* prejudice. Work for understanding.



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LIMA

DEPENDABILITY and STAMINA plus the MOBILITY of Rubber Mounting



Wheel-Mounted "Paymaster"

- Convertible Crane, Shovel, Dragline or Pull
- Powered by one engine
- One Operator Control — including travel
- Crane Capacity 20 tons (with outriggers)
- Shovel Capacity $\frac{3}{4}$ or 1 yard
- Travel Speed (maximum) 8.24 M.P.H.



Truck-Mounted "Paymaster"

- Convertible Crane, Shovel, Dragline or Pull Shovel
- Separate engine for travel
- Requires two operators
- Crane Capacity 20 tons (with outriggers)
- Shovel Capacity $\frac{3}{4}$ or 1 yard
- Travel Speed (maximum) 31 M.P.H.



Wheel-Mounted Crane or Clamshell

- Powered by one engine
- One Operator Control, including travel
- Crane Capacity . . . 35 tons
- Travel Speed (maximum) 5.27 M.P.H.

With these three rubber-mounted units you can now get all the other advantages of LIMA equipment — greater performance, less "down-time", longer life, etc.—*plus* the added benefits of greater mobility, less travel time, and better maneuverability. Rotating assemblies have the same basic features as corresponding crawler machines, with alterations adapting them to truck or wheel

mounting. With outriggers supported, they provide extra capacity. They are ideal for operations requiring constant movement around the job, for small scattered jobs, or jobs remotely located.

THE LIMA LINE NOW INCLUDES:

Crawler-Mounted
Shovels, $\frac{3}{4}$ to 6 yds.
Cranes, to 110 tons
Draglines, variable

Rubber-Mounted
Shovels, $\frac{3}{4}$ and 1 yd.
Cranes, to 35 tons
Draglines, variable

*It will pay you to consult your nearest LIMA Sales Office
or Representative before you buy your next shovel,
crane or dragline. Offices in principal cities of the world.*

Lima Shovel and Crane Division

LIMA, OHIO

OTHER DIVISIONS: Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.



Answers your Civil Engineering questions

- Gives you theory, fundamentals, and practice
- Helps you solve everyday problems
- Packed with authoritative data

Actually, this handbook is 10 books in 1 because it gives you the theory, practice, and fundamentals of the 10 major subdivisions of civil engineering. Each section is packed with the valuable experience, training, and know-how of a preeminent authority in the field . . . gives practical tips to the practicing engineer on how to solve everyday problems. A practical "tool," it covers the widely diverse interests which make up the field of civil engineering . . . surveying, railway and highway engineering, hydraulics, steel design, foundations, etc.

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Professor of Structural Engineering, Cornell University. Second Edition, 870 pages, 6 x 9, over 900 illustrations, tables and diagrams, semi-flexible cover, \$6.00

If you plan, select, design, or construct civil engineering structures, you'll find the **CIVIL ENGINEERING HANDBOOK** a time-saving guide in solving your problems—not only in your specialized field but outside it, as well.

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Brings you practical,
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CM-1-58

This offer applies to U.S. only.

(Continued from page 128)

Worthington Pump & Machinery Corp.—Lloyd L. Brooks is named regional supervisor of the construction equipment division.

United States Rubber Co., New York, N.Y.: Joseph A. Conlon named district sales manager of Chicago branch, Mechanical Goods Division, to succeed William T. Keenan, retired.

Stemco Corp.—Walter Eichhorn is New England district sales manager; W. H. Smith, division sales manager for Philadelphia, Maryland, Virginia, and Washington, D. C.; and W. T. Heintz is special representative contacting the communications industry.

D-A Lubricant Co., Indianapolis, Ind.: Robert C. McColgin appointed sales and service representative for Southern Illinois territory handling heavy-duty lubricants and engine oils.

Stulz-Sickles Co.—R. J. McCallian is appointed district sales manager for the southeastern United States.

Porter-Cable Machine Co.—John A. Proven has been upped to vice-president in charge of sales.

Hyster Co.—William H. Kilkenny is new general manager of Hyster's southern California retail store in Huntington Park.

Mack Trucks, Inc.—Albert G. Crockett has been appointed manager of distributor sales for Mack International Motor Truck Corp.

Marlow Pumps—Ralph Thornburg has joined Marlow as district sales representative covering the east coast from metropolitan New York City to Virginia.

Martin Machine Co.—James M. Arroyo is now the company sales manager.

Chain Belt Co.—Robert R. Horton is named midwest sales representative for the Construction Machinery Division.

Marquette Cement Mfg. Co.—Charles E. Stiver has succeeded his father, Chris E. Stiver, as sales representative in southeastern Missouri.

D-A Lubricant, Inc.—Robert J. Binford is new sales manager.

Personalities

Universal Concrete Pipe Co.: Warren Hunt named office manager of company's main Southern branch in Atlanta, Ga. Company has 15 concrete sewer pipe and culvert manufacturing plants in eight states.

U. S. Steel Corp.—Frederick J. Samerdyke is elected executive vice-president of Gunnison Homes, Inc., prefabricated-housing subsidiary of U. S. Steel.

(Continued on page 132)

5 BASIC TYPES

OF



Type S
10-15 Tons



Type T
15-20-25-30 Tons



WRITE FOR THE CATALOG TODAY

Type H
10-15-20-25 Tons



Type D
30 to 75 Tons



"tailored" to conform to your ideas, adapted particularly to your tractor and efficiently designed to your specific kind of hauling.

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Cable Address: "Broscites"

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220 Orchard Street
ALBION, PA.
EXPERIENCE builds 'em
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Water is precious and valuable for many services and leakage through crevices in rock berm permitted the water to waste out of this dam on the property of a large Natural Gas Company.



Everything is ready to pump 3600 lbs. WATERPLUG into the rock berm, to seal the crevices. Five minutes was required to pump material into place.



The pressure gauges are watched carefully to control the pumping operation and prevent clogging and setting in the pipes.



The pumps, hose and all equipment are washed and cleaned quickly to prevent hardening of WATER-PLUG in the equipment.

Do you have masonry problems?

They can be corrected with THORO System Products



WATERPLUG	STOPS LEAKS
THOROSEAL	SEALS SURFACE
QUICKSEAL	BEAUTIFUL FINISH

Over 65,000 Contractors and Builders use these products as standard for protection of masonry, above and below grade.

Get our new 20-page brochure, with designer's guide. Pictorially described, in detail . . . "How to do it".



Standard Dry Wall Products

BOX X, NEW EAGLE, PENNA.

(Continued from page 131)

Mack Trucks, Inc.—W. J. Corr is named director of service, a newly created post.

Worthington Pump & Machinery Corp.—Kenneth A. Field is service manager of Wellsville (N. Y.) Works.

Jaeger Machine Co., Columbus, Ohio: Ray McLean, for last four years executive vice-president, elected president Sept. 17 to succeed O. G. Mandt.

The Oliver Corp.—R. L. Jones is district manager covering Minnesota, North Dakota, South Dakota, northern Wisconsin and the provinces of Manitoba and Saskatchewan in Canada.

Flexible Steel Lacing Co.—Newton R. Crum is new representative in California area.

Joy Mfg. Co.—Robert L. Frazer is named as representative in Spokane, Wash.

Southwest Welding & Mfg. Co.—Earl B. Maloon is manager of the construction equipment division.

Clyde Iron Works, Inc.—Harry E. Greenwood, Chicago, Ill., is named factory representative for the northern half of the midwest territory.

Diamond Chain Co., Inc.—Howard W. King is appointed West Coast district manager with headquarters in San Francisco.

Portland Cement Association—G. Donald Kennedy is named to the position of consulting engineer and assistant to the president.

Structural Clay Products Institute—Officers for the coming year are: W. J. Goodwin, Jr., president; C. Forrest Tefft, vice-president; W. Gardner Long, treasurer; and Joseph J. Cermak, secretary. All these men were reelected to the positions they held last year.

New Plants or Offices

Portland Cement Association, Chicago: Has opened a new district office in Salt Lake City, Utah, with Edgar B. Wilson as district engineer in charge with headquarters in David Keith Building, 248 South Main St., Salt Lake City.

Texas Co.: Three additional new buildings at the Texas Co.'s Eagle Point plant near Camden, N. J. have been completed by the Wigton-Abbott Corp., engineers and contractors of Plainfield, N. J.

American Machine & Foundry Co.—Has acquired all property and assets of DeWalt, Inc., Lancaster, Pa.

Porter-Cable Machine Co.—Has purchased the manufacturing rights and facilities of the Sterling Electric Tool Products Co., Chicago, Ill.

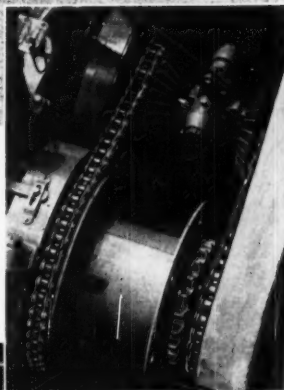
FOR MANY YEARS » » »

DIAMOND ROLLER CHAINS Have Been Regular Equipment

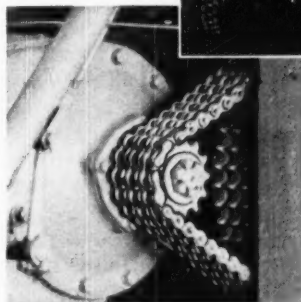


● With high steady output the aim of construction machinery builders, leaders for many years have found the long-life reliable performance of Diamond Roller Chains an important asset.

Their great reserve strength and uniformity of quality meet the most unusual field conditions and aid in gaining user satisfaction. **DIAMOND CHAIN COMPANY, Inc.,** Dept. 418, 402 Kentucky Avenue, Indianapolis 7, Indiana. *Offices and Distributors in All Principal Cities.*



Diamond Chains on turn table shafts and drums of Michigan Shovels & Cranes.



Main drive, Michigan crawler type shovel-crane. — Diamond Triple No. 434 Chain.

DIAMOND



ROLLER CHAINS

THE MARKS OF

Fine Drill Steel

You can make sure you're using Bethlehem by looking for the "A" and "B" markings in groups of six which are rolled on every bar of drill steel at 30-in. intervals. These smooth, raised letters have no sharp lines that could serve as origins for fatigue cracks. Having six marks in a group assures ready identification, even after a bar has seen rough service.

Hard-rock men who have compared drill steels have learned to identify Bethlehem Hollow by its consistently top performance. The bar markings are added assurance of your getting what you specify.

B for Carbon

This fine-quality carbon steel is the standard type of drill steel, the "Old Reliable." It's easy to forge, and its wide quenching range assures easy heat-treatment. Ideal for either forged-on or detachable bits. It stays on the job because it has the dependable quality which stems from controlled hardenability and rigid inspection, a technique we've perfected to insure uniform toughness, long wear and fatigue-resistance.

A for Alloy

This excellent alloy grade, developed to give better service as drill rod for use with detachable bits, has been thoroughly proved by many users who prefer the alloy type of drill steel. It cannot be used for forged-on bits. Its extensive use has demonstrated the fine performance that can be expected when it is properly heat-treated. Developed first by Bethlehem, this alloy drill steel meets I-R Specification 139.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM HOLLOW DRILL STEEL



Save time and money on construction jobs



The reference aid that
helps you solve your
toughest construction
problems

With the construction work that lies ahead for every engineer, it is only up to you to assure yourself of superior workmanship—ensure your work of the finest structural qualities—by providing yourself with this revision of the famous Hool and Kinne Library—the books which for years have been providing structural engineers with the facts they need on every problem concerned with the design and construction of civil engineering structures.

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6 volumes; 3763 pages; 2719 illustrations;
63 contributors

Each one of these six volumes is a complete reference in itself on some aspect of structural engineering. The library

► **COVERS** the how and why of foundation and substructure design and construction, the general theory of structural members, the detailed design of such members and the design of their connection with other members.

► **EXPLAINS** the principles of statics, reactions, moments and shears in beams and trusses, influence lines, methods of computing stresses in lateral trusses and portal bracing.

► **GIVES** details of design and construction of steel, timber and concrete structures of all types

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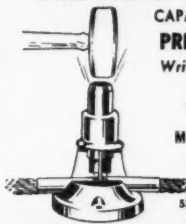
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& CO., Inc.



53 PARK PLACE
N. Y. 7, N. Y.

Cable • Splicing • Chokers
Spreaders • 6/19 Plow Steel
USED

Prices on Request

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SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT • BUSINESS
EQUIPMENT — USED OR RESALE

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EUCLID REAR DUMPS

11 cubic yard bodies interested in two or more. State year, price, condition and location.

WARREN E. MCCARTHY

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Tel. Mystic 6-7346

COMPLETE WELL POINT SYSTEMS WILL DRY UP ANY EXCAVATION

Faster—More Economically

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Tel. IRonsides 6-8600

Branch: Third Avenue & Adams St., Gary, Indiana

Telephone: Gary 23885

Waterproof with Formula No. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1350 lbs. per sq. ft. hydrostatic pressure. Cuts cost; applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

HERMAN NELSON PORTABLE HEATERS

250,000 BTU's

Complete with air-cooled gas engine, one 12-inch x 24-ft. duct, and, six 6" x 14-ft. ducts.

SALE PRICE ONLY \$295.00



100,000 BTU PORTABLE HEATER and DRYER

Blowart—Warner portable,

powerful 100,000 BTU gas-

oline-burning heaters, with

Turbine type blowers; 1 1/2

hp. air-cooled, ball-bearing

engine; 8 ducts (45-

ft. total). IMMEDIATE

DELIVERY.

Excellent Operating Condition Guaranteed

HEATING buildings, shops, sheds, barns,

warehouses, tunnels, bldgs. under

construction, spot-heating, etc.

DRYING plaster, paint, grains, mortar, con-

crete. Torrid blasts of heat.

PRE-HEATING engines, tractors, trucks,

equipment, etc.

THAWING frozen areas, machinery, pipe-

lines, tanks, etc.

• VAST QUANTITY OF REPLACEMENT PARTS

• Also SERVICE MANUAL & PARTS CATALOG

PHONE COLLECT—your Heater can be shipped

within 2 hours, or, SEND FOR LITERATURE

BERNSTEIN BROS.

MACHINERY CORPORATION

Phone 8404 • "Since 1899" • PUEBLO, COLO.

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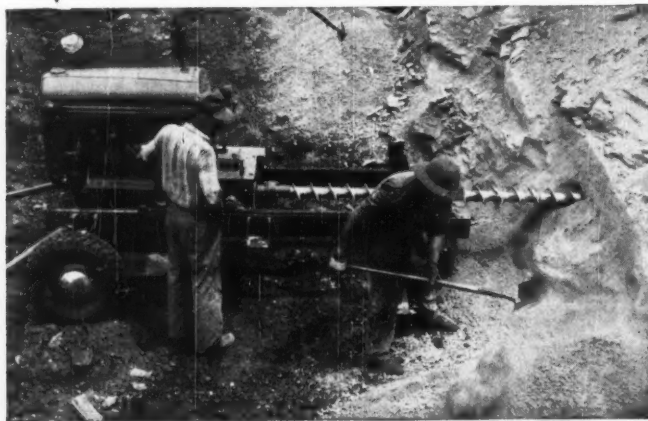
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Parmanco

HI-SPEED HORIZONTAL
D R I L L S
New Traction Drive with Forward and Reverse

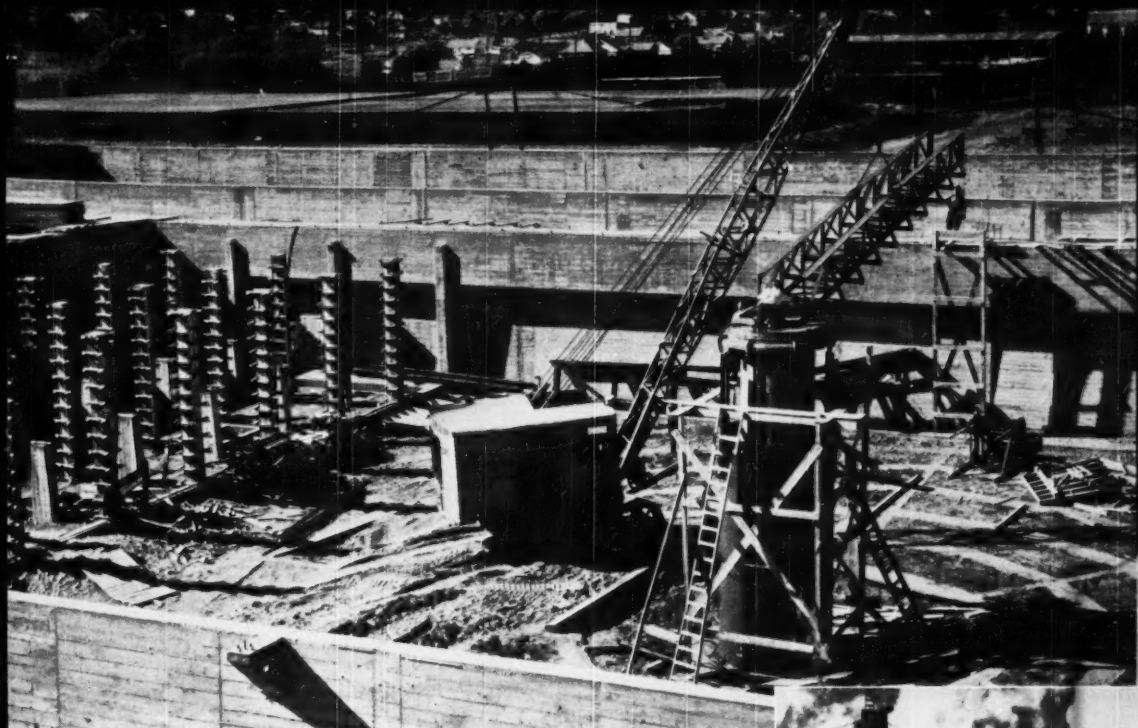


**THIS UNIT IS
DELIVERING
6-inch shot-holes
READY FOR LOADING
at better than
A FOOT A MINUTE!!**

The new Parmanco Hi-Speed Horizontal Drill is completely redesigned around a 40 h. p. engine with four drilling speeds which, in field tests, has cut one-third off the footage drilling time—a cost-per-drilling-foot saving that we are passing on to the strip mine operator and contractor at no increase in our price. In addition, the drill is equipped with a starter and generator, dual type front wheels, truck type rear axle with mechanical brakes and a traction drive with both forward and reverse.

• For both Mines and Construction

PARIS MANUFACTURING COMPANY • PARIS, ILLINOIS



Filtration Plant, City of Edmonton, Alberta, Canada. Engrs.—City Engineers Staff,
Confr.—Poole Construction Co., Edmonton, Alberta.



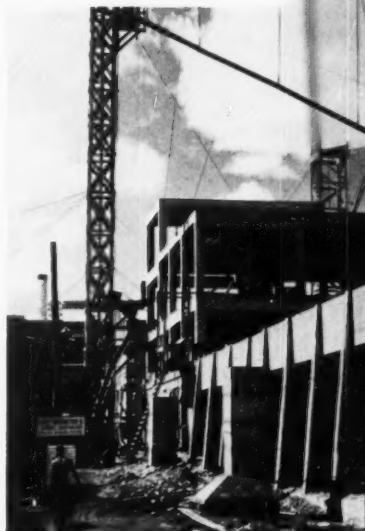
Placeability, Durability for Thin Sections with **POZZOLITH CONCRETE**

Pozzolith, Cement Dispersion, proved particularly advantageous in the construction of this filtration plant with thin sections because it produced good workability *with reduced water*.

Good workability resulted in easy placing; reduced water provided minimized shrinkage, increased watertightness and great durability.

Investigate Pozzolith for your next job because: normal concrete of *any given quality* is produced at lower cost with Pozzolith than by any other means, such as the addition of extra cement or of any other admixture either added or interground.

Full data on Pozzolith will be sent on request.



the MASTER BUILDERS

CLEVELAND 3, OHIO

TORONTO, ONTARIO

"Low Over-All Costs With My BLUE BRUTE Teams,"

Says Jim Slattery

Here are facts — not promises — about how Blue Brutes cut construction costs. Mr. James M. Slattery, of the nationally known Slattery Contracting Co., Inc., Woodside, N. Y., writes:

"We have found that Blue Brutes are dependable performers. The portable compressors require very little maintenance and their cost of operation is low."

"On the job at 51st St. and Fifth Ave., drilling and blasting of considerable accuracy were required. The UMW-40 Wagon Drills were fast drilling, easy to handle and produced work of unusual precision."

"All our compressors and air tools are used on a wide variety of jobs under vastly different conditions. We have learned we can rely on Blue Brutes to give us satisfactory performance on any drilling job."

Once again you can be selective in buying construction equipment — can refuse to accept anything but top quality and immediate delivery. Get further facts proving *there's more worth in a Blue Brute* from your nearby Worthington-Ransome Distributor, or write us direct.

HS-1

WORTHINGTON



Worthington Pump and Machinery Corp.
Construction Equipment Department
Harrison, New Jersey

Distributors In All Principal Cities

BUY BLUE BRUTES

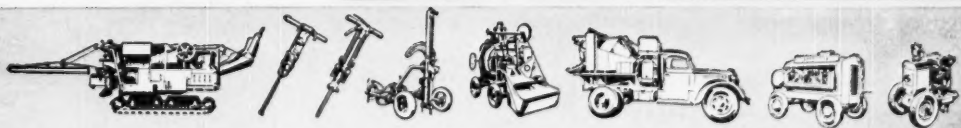
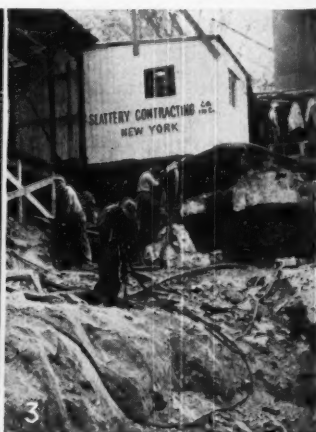


BLUE BRUTE TEAM-MATES AT WORK ON MANHATTAN'S BEDROCK

Line-drilling for the foundation of the 19-story Crowell-Collier Building at 51st St. and Fifth Ave., N. Y. C., cut down 30 ft. through rock. Photos show part of the Worthington Blue Brute equipment used by the Slattery Co., for the extremely accurate drilling required on this location. (1) Two

Blue Brute 500' Portable Compressors deliver a steady supply of air through their easy-breathing Feather*Valves. (2) One of the UMW-40 Blue Brute Wagon Drills — fast, powerful drilling machines that swing into action at any angle. (3) Two of a battery of Blue Brute Hand-Held Rock Drills — hard slugging, precision balanced, easy handling WJ-55's.

*Reg. U. S. Pat. Off.



IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB